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THE BIRDS OF DURHAM AND VICINITY

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AN ACCOUNT

OF THE BIRDS KNOWN TO HAVE BEEN FOUND WITHIN TWENTY MILES OF THE NEW HAMPSHIRE COLLEGE OF AGRICULTURE AND THE MECHANIC ARTS; SUPPLEMENTED BY A LIST OF BIRDS THAT ARE MORE OR LESS LIKELY TO OCCUR.

BY

NED DEARBORN

Thesis for the Degree of Doctor of Science
June, 1902

DURHAM, NEW HAMPSHIRE
1903

APPENDIX

THE BIRDS OF SOUTHEASTERN NEW HAMPSHIRE

BY NED DEARBORN, D. SC.

CONTRIBUTIONS FROM THE ZOOLOGICAL
LABORATORY OF THE NEW HAMPSHIRE
COLLEGE OF AGRICULTURE AND THE
MECHANIC ARTS

VI

THE BIRDS OF SOUTHEASTERN NEW HAMPSHIRE

BY NED DEARBORN, D. SC.

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PREFACE.

In the following account of the birds of Durham and vicinity, I have aimed to present, first, the time and place of occurrence of each species, for I know that to be important to the person seeking new acquaintances among birds; second, such items relating to the food of birds as I have gathered from time to time in their dissection; and, last, certain personal observations, which, though not of much intrinsic value perhaps, have, at least, served as a sort of sauce to make the labor more agreeable to the writer, by helping him to re-enjoy the pleasures of other days afield.

While I have made no systematic attempt to describe birds, for their identification, I have thought it well to mention, here and there, points that have helped me to distinguish between species that are sometimes easily confused.

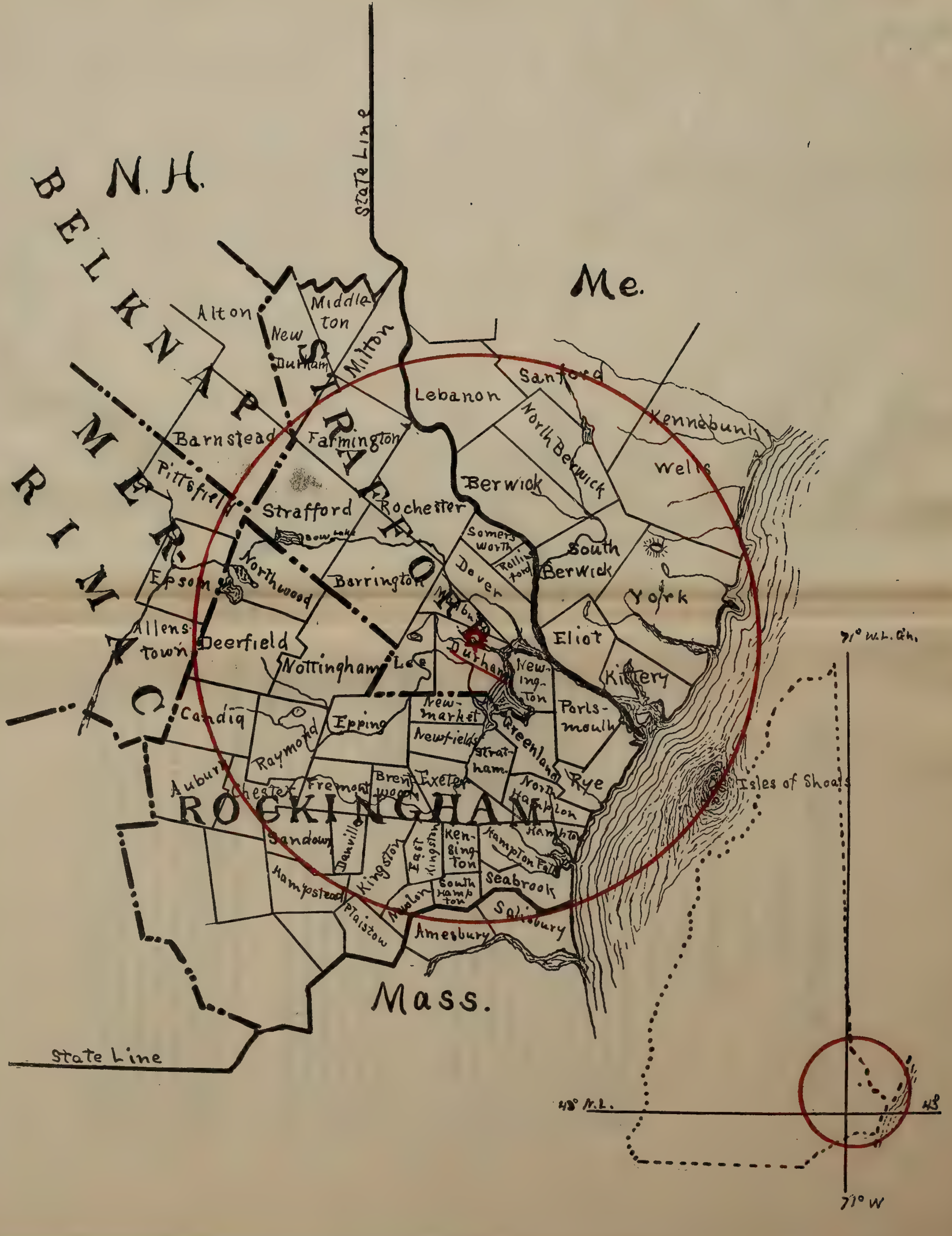
The list of birds actually known to occur within a radius of twenty miles of Durham numbers 252, of which I have examined, either in the flesh or mounted, 240, the other 12 being included on, in my opinion, reliable evidence, which is presented in every instance. In the supplementary list of possibilities are many names that will ultimately be transferred to the list of certainties, and I cherish the hope that local observers will undertake the task of transference. But to any who do so, let me urge the desirableness of certainty. Ornithologists prefer to doubt everything of which they have not ocular proof, therefore let no pains be spared to *substantiate all assertions.* Bear in mind, that a moderate list which can be depended upon, is infinitely better than a long one under suspicion.

Among those to whom I am indebted for permission to examine collections, I must mention Mr. S. A. Shaw of Hampton, Mr. Joseph Turner of Portsmouth, Mr. William M. C. Philbrick of Kittery, Mr. George Wentworth of Rollinsford, Mr. George H. Yeaton of Rollinsford, Mr. George F. Wentworth of Dover, Mr. Walter O. Shute of Newmarket, Mr. John H. Elkins of Exeter, and Mrs. Oliver Dixon of Eliot.

I have followed the nomenclature and sequence of the A. O. U. check-list, second edition, to which the numbers refer.

NED DEARBORN.

NEW HAMPSHIRE COLLEGE OF AGRICULTURE
AND THE MECHANIC ARTS, February 23, 1903.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BELKNAP
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Lebanon
Sanford
North Berwick
Kennebunk
Wells
Berwick
Barnstead
Farmington
Pittsfield
Strafford
Rochester
Somersworth
Rollinsford
South Berwick
York
Bow Lake
Northwood
Barrington
Dover
Epsom
Allenstown
Deerfield
Nottingham
Lee
Madbury
Durham
Newington
Eliot
Kittery
Portsmouth
Candia
Raymond
Epping
Newmarket
Newfields
Stratham
Greenland
Rye
Auburn
Chester
Fremont
Brentwood
Exeter
North Hampton
Hampton
Isles of Shoals
Sandown
Danville
Kingston
East Kingston
Kensington
Hampton Falls
Seabrook
South Hampton
Newton
Hampstead
Plaistow
Amesbury
Salisbury
71° W.L. Gh.
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43
71° W

THE BIRDS OF DURHAM AND VICINITY.

ORDER PYGOPODES.

FAMILY PODICIPIDÆ.

Colymbus holbœllii. HOLBŒLL'S GREBE. 2.

Holbœll's, or the Red-necked Grebe, is rather common in October and November on Great Bay, where it may also be found in April and May. Along the coast it is likely to be found at any time during the winter. It feeds principally upon fish, but aquatic insects and vegetable matter are taken in varying quantities. It prefers the larger bodies of water, either the fresh or salt, to the smaller ponds and streams, differing from the Dabchick in that respect. It is not unusual to see several together during the fall migration. At that time old and young alike are in traveling dress, that is, in plain gray without the reddish brown neck characteristic of the nuptial dress, from which it receives one of its trivial names.

Colymbus auritus. HORNED GREBE. 3.

The Horned Grebe is a fall and spring visitant at Great Bay, and a winter resident along the coast. It seems to prefer the sea, however, to the more peaceful interior waters, at least, where the choice is so easy as it is here. Its food is similar to that of the Red-necked Grebe. It is less abundant here than either of the other grebes. In size it is similar to the Dabchick, but it can be instantly distinguished by its acute bill.

Podilymbus podiceps. PIED-BILLED GREBE. 6

The Dabchick, or Pied-billed Grebe, is the most common grebe we have, as well as the easiest to observe, on account of its habit of frequenting the smaller bodies of water. It is not generally found here in summer, but begins to appear by the first of September and remains till nearly or quite November. It feeds on aquatic insects and grass and other vegetable matter growing about water. Three stomachs, from fall birds, which I have examined, contained vegetable fibers, remains of insects, and feathers from their own breasts. They come regularly to the College reservoir, the mill-pond, and Oyster river. When one finds a good feeding ground it will remain for days if undisturbed. They are adroit hiders, and when approached gradually, swim slowly, quite without apparent concern, till some object intervenes, when they disappear as if by magic.

Family URINATORIDÆ.

Gavia imber. Loon. 7

The Loon is only a passer-by with us though it breeds in the larger bodies of fresh water not many miles inland. A few winter off our coast. The spring migration takes place in May and then more or less are seen on Great Bay. The autumnal movement takes place in October and November. The food of loons consists almost wholly of fish, which by their prodigious swimming powers they are able to overtake and capture. This is the largest and most powerful of the divers. The length of time one can stay under water and the distance he can cover while out of sight is astonishing. It is not uncommon to see, along the coast in summer, loons which for some reason are not in condition to breed. They usually come near the shore to feed and retire further out when killing time, as they seem literally to do as they float about, rising every now and then to stretch their wings, as if weary of indolence yet powerless to prevent it. If one is fortunate enough to find a loon bathing he will enjoy an animated spectacle. Although living in water its whole life long, it actually devotes a portion of its time to bathing. I was once entertained for the greater part of an hour on a fine July morning by such a scene. It was yet early, and as I came out of some woodland to the edge of a quiet arm of the sea, I observed a loon performing his ablutions. He would stretch out his neck full length on the water, head half under then spread his wings and flap them vigorously, sending the water flying in all directions and making a noise that was audible many rods away. Again, he would thrust his head beneath the surface, and, throwing it quickly upward, give himself a shower-bath. After doing this a number of times, he would rise and flap his wings, then settle back and begin all over again.

Gavia lumme. Red-throated Loon. 11

Red-throated Loons are found along the coast in considerable abundance during the migration season, but more particularly in the fall. Adults appear toward the end of September; later comers are immature birds. They are smaller than common loons, but of similar habits. Many of both species are killed for food every year. They are said to be quite palatable when properly cooked—though to use a trite saying, "tastes differ."

Shooting sea-fowl is an occupation about our waters every fall. At Hampton some twenty-five men are thus employed, averaging, I am told, about a hundred birds each, on good years. Each man takes a boat and a number of decoys, and rows out to a place where the birds are likely to fly by. He anchors the decoys, and then places the boat a little way to windward where he maintains his position by slow rowing. When a bird is seen to be approaching, the gunner lies down in his boat which is left to drift slowly towards the decoys. If it comes within shooting distance he rises and risks a shot for what it may bring. The combined effect of wave, wind, and wing is so difficult to estimate that this sort of shooting is full of hazard.

FAMILY ALCIDÆ.

Fratercula arctica. PUFFIN. 13.

Puffins are regular winter visitants off our coast. They were reported common at Isles of Shoals last winter. Judging from the fact that most of the local collections lack them, I infer that comparatively few are killed. The deep, narrow bill, with its bright colors—red, blue, and yellow—is diagnostic.

Cepphus grylle. BLACK GUILLEMOT. 27.

The Black Guillemot, or Sea Pigeon as it is often called, is a winter visitant on the coast. Examples are shot occasionally by duck hunters at Hampton, though it is not good for food, being too strongly flavored with fish to be palatable. Its winter dress contains much white, which distinguishes it even at a distance from other spear-billed water-fowl. Its red feet are also a prominent characteristic of a fresh specimen. It is somewhat smaller than the Thick-billed Guillemot, being only thirteen or fourteen inches in length. Its habits are similar to the other members of family Alcidæ. Whether flying, or diving for food, or floating lazily over the rollers, their stay with us is a period of waiting. When spring comes the waiting ends, and they hasten back to their northern homes.

Uria lomvia. BRÜNNICH'S MURRE. [illegible].

Brünnich's Murre, or Guillemot, is regularly found along the coast from November until March, and sometimes comes to Great Bay and the Piscataqua. November 26, 1899, one entered Mr. Palmer's fish wier in Oyster river and was taken alive. Two other specimens were shot at about the same time. There seemed to be an unusual flight of murres that fall, for they appeared inland at least as far as Lake Winnipesaukee and adjacent waters in such numbers that many were shot. The stomach of one of the Oyster-river specimens examined by me contained four fish, each about four inches long. The general appearance of this murre is similar to that of the Razor-billed Auk, but it may be readily identified by its tail, which is square, while the auk's tail is distinctly tapering.

Alca torda. RAZOR-BILLED AUK. 32.

This is another winter bird that is found in more or less abundance on the coast every year from November to March. I have not learned that it visits Great Bay, though I presume that it does so. The bill of this auk varies greatly in size at different seasons. In spring the maxilla is increased in height, making the bill quite deep, whence the name Razor-bill. In autumn the maxilla has lost its nuptial addition, and then is only an ordinary acute beak, not unlike that of the guillemot.

Alle alle. DOVEKIE. 34.

This diminutive auk, less than nine inches in length, only appears in winter along the coast. They are occasionally killed by gunners and fishermen, who are sometimes able to strike them down with an oar. I have known of a few instances in which an individual has been blown a considerable distance inland by northeast storms. It is by no means rare, and almost every collection of birds made near the sea has at least one. They are said to feed largely on crabs, shrimps, and other small crustacea.

ORDER LONGIPENNES.

FAMILY STERCORARIIDÆ.

Stercorarius parasiticus. PARASITIC JAEGER. 37.

This is the only jaeger that I have found trace of in this vicinity. Mr. Shaw has one in his collection, which he obtained at Hampton. Its general appearance except its color, is quite similar to that of a gull, but its dark brown dress and lengthened middle tail-feathers are entirely different from any of our gulls. It breeds in the high north, and occurs here as only a winter visitant.

FAMILY LARIDÆ.

Rissa tridactyla. KITTIWAKE. 40.

The Kittiewakes are common winter residents, appearing here by the 1st of November. They are more plentiful in early and late, than in mid-winter, as the majority continue southward in their migration. They stick pretty closely to the ocean, but sometimes come inland. One was shot on Newmarket river November 10, 1900. It is most readily distinguished from other species, regardless of plumage, by the absence of the hind toe, the place where the toe ought to be bearing only a small knob.

Larus glaucus. GLAUCOUS GULL. 42.

The Glaucous Gull is one of the winter visitants along the coast that rarely falls into the hands of local collectors. In examining eight different collections about here, I have found only one Glaucous Gull, that being in the possession of Mr. S. A. Shaw of Hampton, who procured it some years since in the month of May.

Larus marinus. GREAT BLACK-BACKED GULL. 47.

This handsome gull comes from the north as early as the middle of October and may be seen at the beaches from that time on through the winter. Most of the fall birds are young in the brown plumage, but adults are not rare. They may often be seen standing on the shore, singly or in groups, just where the remnants of the breakers cease their shoreward flow and turn back. In company with herring gulls, they follow the fishermen for the refuse from their cleaning tables which is thrown overboard. At such a time they lose much of their usual caution, and come quite close to the schooner in their rush for garbage. This gull measures upwards of two and a half feet in length, being our largest gull except the Glaucous Gull, which is about the same size.

Larus argentatus. HERRING GULL. 51a.

This is the common species seen flying over the Piscataqua and Great Bay, or resting high on the water like unladen ships waiting for a fair wind. They begin to come early in October, and remain till the last of April. I never saw them more abundant than on the 20th of the latter month, 1898, though I saw none afterward that spring. The main flight reaches here about the first of November, the earliest comers being adults, which appear white at a distance. The young ones in their gray plumage are so unlike their elders as to seem of a different race. While many pass the day on inland water, they all go to sea to spend the night, out of the reach of harm. Though herring gulls generally hunt singly or in widely scattered flocks, they are social when at rest, and after the morning meal all the gulls in the neighborhood may be seen congregated on a sandspit or an isolated bit of marsh. They are very wary and never allow a man to come within gunshot if they know it. They fly over the water, watching with keen eyes for anything that may serve as food. They sometimes catch fish by diving down from aloft, but more often they alight beside a piece of floating garbage, which they tear into pieces with their powerful hooked beaks, and devour at leisure.

Larus delawarensis. RING-BILLED GULL. 54.

This gull is a spring and fall migrant. It closely resembles the last species in color at all ages, but is somewhat smaller, and, when captured, may be identified at a glance by the color of the webs of its feet, which is bright chrome,—on the Herring Gull it is flesh-color.

Larus philadelphia. BONAPARTE'S GULL. 60.

Bonaparte's Gull is common at Hampton and elsewhere on the coast in August, September, and the early days of October, but is not often seen after the middle of the latter month. It occasionally is seen at Great Bay, but does not come so regularly as some of the winter gulls. It is much smaller than the other gulls found here, being only about thirteen inches long,—hardly more than half the length of a herring gull. Its bill is quite slender, and lacks the prominent hooked tip and angular outline of a typical gull bill.

Its movements remind one of a tern rather than of a gull. Being our only summer gull it cannot be mistaken for any other, except near the end of its stay. This species is said to eat insects to a considerable extent.

Sterna caspia. CASPIAN TERN. 64.

This, our largest tern, is an irregular visitor. Mr. Shaw tells me that he has observed it but twice at Hampton. Two, in immature plumage, were killed there in the fall of '99. The skin of one of them is now in Mr. Shaw's possession. Though almost as large as a herring gull, it has the spear-like bill and long, acute wings characteristic of terns, and also the regular tern way of taking its prey by dashing headlong into the water, and quickly rising again to continue its coursing to and fro above the waves.

Sterna hirundo. COMMON TERN. 70.

Common Terns are not likely to be seen here in midsummer, as at that time they are confined to their nesting places, none of which are in this region, though they are known to breed both north and south of us. It is to be seen in spring on its northward flight and again in the fall, when all birds are much abroad, impelled by the early impulses of the migrating instinct. The mouth of Hampton river is a favorite hunting ground for terns in August and early September. When the tide is low, so that the broad flats are partially covered, and there are strong currents round the island—which is only a peninsular at low water—the terns assemble to watch for the small fry hurrying over the shallows. The terns are masters of the art of flying. As they move along with bill down, and eyes fixed on the water, now hovering, now dashing down almost to the water, saving a wetting at the last instant when a quick eye has seen the quarry dart away, holding the course regardless of flaws in the wind, dropping like a plummet when opportunity offers the right chance, all, without any apparent attention to the management of their wings. I have watched one of these terns fishing beside a wharf. Again and again he came to the same place, and, after hovering a moment, would drop like a meteor so close to the planking that it was a wonder he didn't hit it. In spite of a stiff breeze and a moving target, he made no mistake about the wharf, though I think he failed sometimes to get his fish. Common terns breed abundantly on the island of Penikese, one of the Elizabeth group off the coast of Massachusetts. They nest indifferently on rocky shore or among the grass in a sheep pasture. As one walks over the end of the island where the nests are, the air seems filled with the old birds, which dive spitefully at the intruder, and keep up such a din of discordant cries that his ears quickly become weary. The territory over which these terns fish is surprisingly large. At Woods Holl, some twelve miles from Penikese, it is the usual thing near sunset to see terns coming from still further up the coast, each with a small fish held crosswise in its bill, making the home journey with supper for their young. As soon as the young are able to fly they are taken to the feeding grounds and taught to fish for themselves, though they are still fed for some time, and may often be seen resting on the rocks while their parents are hunting for food. They are essentially "fowls of the air" and do not float about on the water like gulls. They dive by the force of their descent through the air and are out of sight only for a moment. They seem to use their webbed feet but little, as they do not rest on the surface as gulls do, but rise on the wing at once, when they come up, shaking off the spray as they fly.

Sterna antillarum. LEAST TERN. 74.

The Least Tern is of rather irregular occurrence. Mr. Shaw has one in his collection but reports it as uncommon at Hampton. In size it is hardly larger than a swallow, being but nine inches or less in length, and is therefore readily recognized, as all the other terns found here are more than a foot long.

Sterna fuliginosa. Sooty Tern. 75.

In Stearns's New England Bird Life, part II, p. 373, one may read, concerning this species, of "a fine adult male, taken at Newmarket, N. H., about Sept. 14, 1878, by Mr. D. C. Wiggin." Its normal range is tropical.

ORDER TUBINARES.

FAMILY PROCELLARIIDÆ.

Puffinus gravis. GREATER SHEARWATER. 89.

In the collection of birds belonging to Mr. William M. C. Philbrick of Kittery, Me., who, by the way, has by far the largest, as well as the most systematically arranged, private collection of curios of all sorts, that I ever examined, I found a specimen of the Greater Shearwater that was taken near Portsmouth.

Oceanodroma leucorhoa. LEACH'S PETREL. 106.

Although petrels are strictly birds of open ocean, out of breeding season, I have evidence that they sometimes stray into unwonted places, in the skin of a Leach's Petrel killed in Oyster river, November, 1898. The man who shot it said "it was swimming like a duck." Mr. Shaw also has one in his collection which he procured at Hampton. Its presence here in the river was undoubtedly due to a storm a few days previous. This petrel may be recognized by its moderately forked tail.

Oceanites oceanicus. WILSON'S PETREL. 109.

This petrel is distinguished from Leach's by its square tail and somewhat inferior size. It is not uncommon off our coast. I have found one specimen, in Mr. Philbrick's collection at Kittery.

ORDER STEGANOPODES.

FAMILY SULIDÆ.

Sula bassana. GANNET. 117.

Gannets come down from their breeding grounds, along the coast northward, at the approach of winter, and are likely to be seen at any time from then until spring. In size they rival the Black-backed Gull, thus being one of our largest sea birds. They both fly and swim with ease, their general habits being similar to those of gulls.

FAMILY PHALACROCORACIDÆ.

Phalacrocorax dilophus. DOUBLE-CRESTED CORMORANT. 120.

Shags, as the cormorants are indiscriminately called, are not infrequent fall migrants to Great Bay. Usually not more than two or three appear there at a time, though in October, 1900, a flock of about forty came and stayed there several days. On the coast they are more abundant, but only in autumn, as in spring, they are not seen. They divide their time between flying and swimming very much like Herring Gulls. When on the water, their color and profile as seen at a distance, remind one of loons.

ORDER ANSERES.

FAMILY ANATIDÆ.

Merganser americanus. AMERICAN MERGANSER. 129.

The Sheldrake, as he is commonly called, is frequently seen on open rivers in winter. The cold has no terrors for him. Though sheldrakes are here all winter, they are most abundant late in December, and again early in March. The adult male is very conspicuous with his predominating white plumage, as he floats on the cold blue water, particularly when he is illuminated by sunshine. In the hand, he shows a beautiful combination of colors. His head is dark, glossy green, the shoulders are black, rump and tail gray, other parts white, except the abdomen, which has a salmon tinge. The bill, feet and legs are vermillion. As one takes such a creature from the water, he cannot help feeling that he has come into the possession of one of earth's rarer beauties. Fall birds are mostly dull colored females, or young males which resemble them. They feed almost wholly on fish, though I once examined one, killed in March, which had swallowed an enormous bullfrog.

Merganser serrator. RED-BREASTED MERGANSER. 130.

The Red-breasted Merganser is more closely confined to the ocean and its immediate vicinity than either of the other mergansers, though it finds Great Bay sufficiently salt to suit its taste, and it may be found there any fall or spring. It is somewhat smaller than the preceding species, but it is colored in general very much like it. The male *serrator*, however, is embellished with a crest not found on *americanus*. The females of the two species cannot be distinguished out of hand. In hand, however, they are quickly told apart by noticing the position of the nostril. In *serrator* the nostril is back within the depth of the bill, or less, of the feathers, while in *americanus* the nostril is much farther from the feathers.

Lophodytes cucullatus. HOODED MERGANSER. 131.

Hooded Mergansers are not uncommon visitants to Great Bay and its tributaries in late fall and early spring. Sometimes they come into the mill-pond and again into Salt river quite near the village. In November, 1900, three females were taken at one shot by Mr. Palmer but a little way below the bridge by the sawmill. In examining the stomach contents of one of these specimens I found it to consist of two small minnows (*Fundulus*) and an immense number of fish vertebræ. In the same bird was a tapeworm, seven inches long, which lay approximately lengthwise of the abdominal cavity, its head in contact with the duck's liver. Adult males, which are one of our handsomest water birds, are relatively few, as compared with females and young males in immature plumage.

These mergansers are usually seen in small flocks, swimming near shore, the home of the minnow, when feeding. They are expert divers, remaining submerged for a considerable time, and when not feeding frequently engaged in a kind of play, diving, splashing, and performing various antics in a most engaging manner.

Anas boschas. MALLARD. 132.

Mallard Ducks are of irregular but not rare occurrence, according to Mr. Shute of Newmarket, who has taken them repeatedly on Great Bay. A pair now in the College collection were killed there and mounted by him some years ago. They usually are found in company with Black Ducks. It is a common species in the west, where it is considered one of the choicest ducks for the table. The green-headed domestic drake is of Mallard origin, its ancestors having been wild Mallards. The food of the Mallard consists of seeds, roots, mollusks, small crustacea and insects.

Anas obscura. BLACK DUCK. 133.

This species is abundant on Great Bay, spring and fall, and is a winter resident on the coast. They begin to come from their breeding grounds further north, early in September, but the main flight does not appear till October, when hundreds resort to the fresh and brackish waters in this vicinity. A little after sunset they may be seen flying over, from the ponds back in the country, where they have spent the day in seclusion, to Great Bay, which is their feeding ground in this vicinity. I have seen not less than two hundred flying over this village at one time, going down to feed. Market gunners persecute them mercilessly and several hundred are annually killed at Great Bay alone. After ice begins to form they depart for the sea where they stay during the day, coming into the rivers nights to feed. The northward migration is at its height in April. Stomachs of this species which I have investigated have contained vegetable matter almost wholly. One showed bulbous grass roots; another was filled with polygonum and sedge seeds, and among them was a larval insect, apparently dipterous. They are fond of feeding on the bottom where the water is shoal enough for them to reach down as they float. They dabble a great deal, in the same manner as domestic ducks. In pleasant weather they are inclined to be quiet after the sun is up, but on rainy days they are active all day long, and the harder it rains the happier they appear to be.

Chaulelasmus strepera. GADWALL. 135.

This is one of the rarest ducks on our list. Mr. Shaw states that only a very few have been killed at Hampton during the past twenty-five years. Mr. George Wentworth has in his collection at Dover, a pair of spring birds, which were taken on Little Bay. The Gadwall is said to be rather solitary and retiring in its habits, never associating in large flocks, and generally preferring secluded shores to open water.

Mareca americana. BALDPATE. 137.

Another rare visitant. Old gunners say it used to be fairly common spring and fall on Great Bay, but in late years Baldpates have been few and far between. In twenty years of collecting at Hampton Mr. Shaw has been able to get but one, a female, which he mounted and still has. Its food is similar to that of Black Ducks.

Nettion carolinensis. GREEN-WINGED TEAL. 139.

This Teal, like its cousin, the Blue-wing, is of irregular occurrence. October is its usual month with us. Of the two species, this is the more common. Both are river ducks and have practically the same bill of fare.

Querquedula discors. BLUE-WINGED TEAL. 140.

This little duck is not seen here very often, but now and then one happens along in the early part of September. Mr. Shaw's collection contains one which he took at Hampton. Its food consists principally of insects, mollusks, and seeds.

Spatula clypeata. SHOVELLER. 142.

The Shoveller is a rarity that does not often fall to the lot of a gunner here about. Mr. Shaw has a male taken in autumn some years ago at Hampton. Its great bill, which is about three inches long, and quite broad at the tip, is sufficient to identify it. Its food consists of both animal and vegetable matter. Insects, worms, mollusks, seeds, and grass are all included in its diet.

Dafila acuta. PINTAIL. 143.

Pintails are rather scarce spring and fall migrants. Its long neck and tapering tail, which give it a peculiar swan-like grace, enable one to recognize it at a long distance.

Aix sponsa. WOOD DUCK. 144.

The number of Wood Ducks found here has greatly diminished of late years, so that they have now become actually scarce. I have several times seen them in October, on Durham river adjacent to Mr. Samuel Hoyt's field, where several oaks are standing on the bank of a pool. Here they obtain acorns in abundance from the bottom of the river, where the water is so shallow that they can pick them up as they idly swim about. Some years ago, Mr. Walter Shute of Newmarket found a Wood Duck's nest on the ground at the base of a tree between two large roots. They usually nest in hollow trees, but for some reason that custom was not followed in this instance. They are quite at home in trees, perching and moving from branch to branch with the utmost confidence. They have a good deal of curiosity, and when driven out from a hiding place seldom fail to return high overhead to ascertain the cause of their fright. This duck easily takes the lead in point of beauty, as the adult drake is unsurpassed in style or coloring. I have seen them here in autumn from the last of August till the first of November. In spring they may be seen any time after the middle of March until late in April. Their *menu* contains the regulation fare—insects, grass, mollusks, and so on—sought by all the river ducks. They are particularly fond of nuts, acorns, chestnuts, beechnuts. A stomach I once examined was filled with white oak acorns.

Aythya americana. REDHEAD. 146.

The Redhead, first cousin to the noted Canvas-back of epicurean fame, is a migrant sometimes taken in autumn. It is a common species through the interior, and along the coast of the middle Atlantic states, but this is somewhat out of its normal range. I have found several specimens in local collections.

Aythya marila. SCAUP DUCK. 148.

Blue-bills, as they are locally called, are frequently found at Great Bay during the migration periods. Many are shot for market, but they do not bring a high price as they are usually of a rank flavor. In autumn they appear in October and remain about a month. In spring they are here again, for a week or two in April. They subsist largely upon mollusks. The only stomach that I have examined I took from a specimen killed on Great Bay in October. It contained much sand, a little eel-grass and four small gastropods. Scaups usually keep well out from shore, where they dive for their food with much facility.

Aythya affinis. LESSER SCAUP DUCK. 149.

As to the abundance of this species I am unable to state definitely, but it appears to be less common than its larger relative, the American or "Big" Scaup. Gunners do not always distinguish between the two species, and I am not sure of their evidence. Mr. Shaw has one in his collection, however, which speaks for itself. The food and other habits of this species are similar to those of the last, with which it is usually associated.

Aythya collaris. RING-NECKED DUCK. 150.

I have found but one specimen of this duck, a fine adult male taken in the fall, on Little Bay—Piscataqua—and now owned by Mr. George F. Wentworth of Dover. It is apparently one of our rarest ducks.

Clangula americana. AMERICAN GOLDEN-EYE. 151.

Whistlers, as this species is trivially termed, are common in winter wherever there is open water. They ordinarily appear in winter, and remain in Great Bay and Piscataqua till March, when they depart for their northern homes. Many of them do not go very far north, however, as they are known to breed about some of the Maine lakes. They are rather shy ducks, and usually keep well away from shore in places where the water is sufficiently shoal for them to go to the bottom for their food, which consists chiefly of mollusks, crustaceans, and aquatic insects, though I have found traces of vegetable matter in their stomachs. They usually go in flocks of a dozen or less. They feed a good part of the day, going down and coming up continually, one or two at a time, so there is generally one or more at the surface to keep an eye out for danger. Their narrow-pointed wings make, as they fly, a whistling sound, which may be heard at a considerable distance, and which has gained for them their vernacular name, Whistler.

Clangula islandica. BARROW'S GOLDEN-EYE. 152.

This species is of irregular appearance. Mr. George Wentworth of Dover, has the only specimen that I have found, a fine male which was shot some years since on Little Bay. The most noticeable difference between this species and the last is in the shape of the white spot on the side of the head; on the Whistler it is circular, while on this bird it is a crescent.

Charitonetta albeola. BUFFLE-HEAD. 153.

This species is a frequent visitor both on Great Bay and on the coast from October till April. They are small, being but a little larger than a dove. Their habits and coloration remind one of Whistlers. They are very agile, diving so quickly when shot at as to merit their trivial name, Dipper, by which they are best known.

Harelda hyemalis. OLD-SQUAW. 154.

Old-squaws may be seen fall and spring on all our tide waters. According to the older gunners, they are greatly decreased in numbers within the last fifty years. They frequently go in pairs, male and female, and a prettier sight can hardly be seen than a pair of Old-squaws on the wing. They are small, dainty creatures, graceful as doves, and the profile of the male as he flies always reminds me of the passenger-pigeon. The name, old-squaw, and sundry other terms such as "old-wife," "old-Injun," "scolder," etc., have been applied to this duck in acknowledgement of its volubility. They are said to foretell storms, and when their cries are heard coming up from the water farmers prepare for bad weather.

Histrionicus histrionicus. HARLEQUIN DUCK. 155.

Harlequin Ducks, often styled "lords and ladies" because of their trim build, and striking patterns and contrasts of color, are not rare at Hampton in winter, but I can find no trace of them inland. Mr. Shaw has three or more in his collection, one being an adult male. They are expert divers, and scarce enough to be prized by the gunner so fortunate as to capture one. Small fish and mollusks are said to constitute their chief fare.

Somateria dresseri. AMERICAN EIDER. 160.

The American Eider is of irregular occurrence at Hampton. Mr. Shaw has an immature male which he took there several winters ago. It is not found inland, being exclusively a marine species. Its principal food is shell fish.

Somateria spectabilis. KING EIDER. 162.

This species like the American Eider is only an irregular visitant on the coast. Mr. Shaw has a female which he shot at Hampton. The females of the two species closely resemble each other in size and color, but the distribution of feathers at the base of the bill enable one to distinguish between them immediately.

163.

Oidemia americana. AMERICAN SCOTER.

The scoters are a salt-water group, and it is unusual to find any of them on fresh water. On Great Bay, American or Black Scoters are common in September and October, and again in spring, though never so abundant as on the coast. At Hampton they are plentiful in the fall, but when winter comes on they move farther south. They are here again in April on their return journey to their arctic homes. The male is wholly black, and the female has no white either on head or wing, by which both sexes may be distinguished from the other scoters. All the scoters feed chiefly upon shell-fish.

Oidemia deglandi. WHITE-WINGED SCOTER. 165.

This coot is found under similar conditions as the last, and in about the same numbers according to gunners who shoot them. Both sexes have a distinguishing mark in the white wing-bar, which is not found on either of the other coots.

Oidemia perspicillata. SURF SCOTER. 166.

Surf Scoters, or Skunk-headed Coots, as they are locally termed, are plentiful at Hampton and elsewhere on the coast, spring and fall, and are not unfrequently found on Great Bay. I have a pair, killed in Newmarket river in the spring of 1900 by Mr. Shute, which are the only ones ever seen in fresh water by that veteran duck hunter. The food of this species is similar to that of the other scoters. Old and young have more or less white on the head but none on the wings. All coots are much hunted both for sport and profit, though their flesh savors rather too strongly of fish to be in favor with every one.

Erismatura rubida. RUDDY DUCK. 167.

This little migrant, I believe, is not very common. Mr. Shaw has one adult male in summer plumage, and one or two more in winter dress, in his collection, all taken at Hampton. It is quite as much at home in fresh water as salt and is likely to be seen anywhere. Its food is chiefly of a vegetable nature, procured from the bottom by diving, but insects and mollusks are also eaten to some extent.

Branta canadensis. CANADA GOOSE. 172.

Canada or wild geese, are frequently seen in November and April as they pursue their migrations. More or less of them annually alight in Great Bay, and instantly become the centre of attraction for numerous gunners, who are continually on the watch for passing water fowl. They are easily tamed, and make interesting pets. If they have access to no more water than they need to drink they do not appear to thrive the less. Mr. Shute of Newmarket has had a pair, which he winged on Great Bay, for several years. They have the run of his lawn, and are no more shy than ordinary poultry. The food of this species is chiefly vegetable, consisting of grass, seeds and aquatic plants.

Branta bernicla. BRANT. 173.

Brant are somewhat irregular but by no means rare visitors to Great Bay and the Piscataqua, both spring and fall. I have seen several specimens from the bay, and Mr. Shute tells me that he sees more or less of them flying every year, though they do not always alight. On the coast they would be expected to occur oftener than here, but inquiry at Hampton does not indicate it, as they are not often taken there. It is said to feed largely on eel-grass and other marine plants. The Brant is considerably smaller than the Canada goose, and has no white whatever on its head, though adults have a spot of white on the side of the neck, near the throat, the young having the head and neck entirely black.

Olor columbianus. WHISTLING SWAN. 180.

The appearance of a wild swan here is an extraordinary event, and I can cite only one case. Some years ago one was wounded and captured alive on Great Bay by Mr. Harry Chapman of Newmarket, who, being a market gunner, was glad to swap it with one of his neighbors for a goose, which he knew better how to dispose of. The swan recovered from its wounds, and was kept alive for some time, but was finally killed for the table. Another was killed in Great Bay, December 16, 1902, by Herbert Caswell, of Newington. It is now in the college collection.

ORDER HERODIONES.

FAMILY ARDEIDÆ.

Botaurus lentiginosus. AMERICAN BITTERN. 190.

Bitterns find a home in the extensive swamps lying to the northeast of Wheelright pond in Lee, and from thence to the ponds of Barrington. Here is a vast tract of marshy solitude just suited to a bittern's taste. Excepting in the migrating season, I have not found bitterns about the salt water. They come north in April and stay until well into October. The latest record that I have is October 14, when I found one on the Hampton marshes. I presume they stay considerable later than that. Bitterns are very odd birds, acting as if they knew themselves to be the homely, loose-jointed, awkward creatures they really are. They are not so fond of the shore as herons, but prefer the seclusion of grassy swamps and marshes, where they stalk watchfully about in search for hapless frogs and other vermin, their long, crooked necks and stooping forms giving them a dejected look. If they see a man at a distance they steal guiltily away through the grass; but, when surprised, they fly off with a frightened squawk, looking backward as they go to see if they are pursued, their legs dangling behind, in their awkward, disheveled haste. The heavy sound emitted by them, not unlike that produced by driving a stake into soft soil with a maul, has given rise to its common name, "stake driver." This sound is often heard morning and evening in spring where bitterns are breeding. The nest, which is made of grass, is placed on the ground.

Ardetta exilis. LEAST BITTERN. 191.

Though this is an irregular and rather rare visitor in New Hampshire it has been found in the Connecticut valley, also near Concord, and at Hampton. One taken at the latter place some years ago by Mr. Shaw is now in that gentleman's collection. It is a bird easily overlooked, and may be more plentiful than even bird hunters realize. At all events it has been found in Maine and New Brunswick a number of times, and observers in this section may entertain a hope of adding it to their list of bird acquaintances. August and September are the months in which it is most likely to be seen.

Ardea herodius. GREAT BLUE HERON. 194.

Great Blue Herons are common migrants, and occasional summer residents, though, I believe, they are not accustomed to breed here. In April and early May, and from August till November they are not uncommon. The mill-pond, the college reservoir, and the muddy flats of the salt rivers and Great Bay are all feeding grounds for them. They are tall, keen-eyed and wary, and exceedingly difficult to approach. The food of this and other species of the heron family consists of fish, frogs, crustaceans, and insects. A November stomach opened by me contained remains of fish and a hydrophilid beetle. They are still-hunters. Stealth is in every movement as they cautiously step along, raising each foot and placing it with the utmost deliberation, all the while keeping a sharp outlook above, around, and beneath. They build huge nests in tall pines, usually selecting a site remote from human habitation, regardless of proximity to water. Although they often build in communities elsewhere, nests that I have known about in this state have been solitary.

Ardea egretta. American Egret. 196.

This beautiful heron, nearly as large as the Great Blue, but white from tip to tip, is a resident of the south, and only accidentally strays to this part of the United States. However, one was shot by Mr. Charles Perkins of Newmarket, on the river about a mile above Newmarket village, in the summer of 1897. I saw the bird after it was mounted. It was an adult in very good feather. This heron has a common grievance with the Bald Eagle against certain Americans. The red man sought the eagle's pinions with which to construct the ferocious head dress embalmed upon our copper coins; while modern woman finds no less joy in the gauzy plumes of the Egret.

Ardea virescens. Green Heron. 201.

Green Herons are common along Oyster river and the Piscataqua from May through September. They nest regularly in thick growths of small pines and hemlocks. The young are out of the nest for some time before they attempt to fly, running through the tree tops almost as nimbly as squirrels. At that period they have a peculiar hoary appearance owing to the baby down remaining attached to the feathers, which push it out on their tips, from the skin. It is truly astonishing to see what expert climbers these herons are, when one has been accustomed to seeing only their stupid ways on shore. One day early in August, I discovered a family of these young birds in a grove. They were all near the nest, standing quietly about fifteen feet above the ground, though evidently quite awake and intent on my movements. After looking them over a few minutes I decided that the rest of the party would like to see a young heron also, and that I would catch one and take him back to camp to exhibit. I went up to the pine in which one of them was standing, and shook it vigorously, expecting to see him tumble. He did nothing of the sort, but, instead, flopped into the next tree, ran across it, flopped into the next, and before I was fully aware of his intentions I had lost sight of him. But I shook a tree or two near where I last saw him and soon had him going again. This time he was evidently startled, for his time was double quick, and in less than a minute I had completely lost track of him, and though I shook all the trees in the vicinity I failed to find him again. I learned something about Green Herons that day that I never dreamed of before, and, I am bound to confess, I have held them in higher regard ever since. The spring plumage of this heron is truly beautiful, not to be compared with the young of autumn. They feed principally on small fish, crustaceans and insects, larval and adult.

Nycticorax nycticorax nævius. Black-crowned Night Heron. 202.

Quawks as they are popularly called, or to use the local name, Buttermunks, are abundant summer residents from May until October. I have seen them come on the 2d of May, flying high, and arriving at Great Bay in the morning at about sunrise. They are here in considerable numbers at the beginning of October, but I cannot state the exact time of their departure. For several years they nested in quite large numbers at different localities near Great Bay. One of their deserted communities may be seen in the pines on the Newington shore directly opposite Adams's point, Durham. These pines are from forty to seventy feet high and the nests are among the lower branches, in full view of the ground. It is not usual to see more than one nest in a tree. This heronry was occupied in 1897. Another one, inhabited in 1898, is in Newmarket on the west shore of the bay near the draw-bridge. This is in a mixed growth of small oaks and pines. The nests are in the pines and do not average more than twenty feet from the ground. The herons are said to have been driven from this last heronry by French mill operatives from the cotton-mills at Newmarket, who made it a practice to spend their Sundays in prowling about the woods and shooting the herons for fun. Whether there is still a breeding place about the bay generally resorted to by these herons, I cannot say. Night herons, as their name implies, are nocturnal birds, not much seen on the shore during the heat of the day except when the young are first on the wing and demand a good deal of attention from their parents. Whoever would find them feeding must take early morning or twilight for his time. It is not difficult to find them, however, if he will take the trouble to visit pine woods, adjacent to the shore, where they roost during the day. There is a decided difference in coloration between young and adult, which confuses one who does not know the bird in both plumages. The young in the fall lack the black crown and back of the adult and, moreover, are much spotted with white, making them look decidedly speckled. Both immature and adult birds are characterized by the same slaty-blue ground color, and neither can well be taken for any other species of heron that is found here. The food of a specimen taken in May consisted of fish and shrimps, aquatic beetles and worms—fish and shrimps predominating. Another stomach from a bird taken in September, contained three nematode worms, and remains of shrimp or other small crustaceans, tender grass shoots, and several dycotyledonous seeds, partially sprouted and devoid of husks.

ORDER PALUDICOLÆ.

FAMILY RALLIDÆ.

Rallus crepitans. CLAPPER RAIL. 211.

There is a specimen of this rail in the College collection that was brought to Portsmouth some years since by a southwest gale and dropped on the flats near the city, where it was knocked over by a clam digger. As we are considerably north of its normal range, it is to be classed among the accidental visitors.

Rallus virginianus. VIRGINIA RAIL. 212.

Virginia Rails are regular visitants to the marshes along the coast, and sometimes breed at Hampton, according to Mr. S. A. Shaw, who has seen at least one nest there. Their season here lasts from early in May till late in September. As a family the rails are timid birds, living among the rank grass and weeds of marshes, and seeking safety by running oftener than by flying, so that if one would make their acquaintance he must search for them diligently and with more or less persistency, before he can drive them from cover.

Porzana carolina. SORA. 214.

I have not been able to find any direct evidence that the Carolina Rail, or Sora, nests in this section, but it is at least an abundant visitor to the marshes all along the coast in September, and sometimes obtained at Great Bay. At Hampton a few years ago one was killed in the spring, which had only one wing, the wound inflicted by the loss of the other wing being entirely healed. Where the bird spent the winter is a mystery.

Porzana noveboracensis. YELLOW RAIL. 215.

I cannot learn that this rail has been observed in this section except at Hampton, where it is only rarely seen, about the first of September. It is the smallest of its family to visit us, being but six inches long. The only specimen that I have been able to find is in the collection of Mr. Shaw at Hampton.

Ionornis martinica. PURPLE GALLINULE. 218.

A Purple Gallinule was killed at Rye some years since and mounted by Mr. Joseph Turner of Portsmouth. Another specimen has been taken at Willand's pond, Dover, according to Mr. George F. Wentworth of that city. These two are the only instances of this gallinule's presence in this vicinity that I can cite. The gallinules resemble the coot in general appearance, though they are a little smaller, and have no scalloped membranes on their toes. In habits they are similar to rails.

Gallinula galeata. FLORIDA GALLINULE. 219.

Mr. George Wentworth of Rollinsford has an immature specimen of this species, which he killed by a brook near his house some years since. This species, like the last, is to be accounted among our rare visitants.

Fulica americana. AMERICAN COOT. 221.

The Coot, or Mud Hen, is most likely to be seen in the fall between the last of August and the middle of October. It swims well but with a jerky motion of its head as if beating time for the movements of its feet. Generally, it keeps close to marshy shores, where it finds seclusion among the grass and rushes that grow in shallow water; but sometimes one is found out in clear sailing. It is not a difficult bird to approach especially when out from shore, where there is no place to hide. A coot's stomach which I once opened contained bits of grass and a considerable amount of sand.

ORDER LIMICOLÆ.

FAMILY PHALAROPODIDÆ.

Crymophilus fulicarius. RED PHALAROPE. 222.

The Red Phalarope is sometimes seen during the fall migrations along the coast. Gunners tell me that it seldom comes ashore, but is generally seen flying over the sea or floating with the drift. Occasionally, however, they are seen on the beach in company with sandpipers. I have found, in Mr. Shaw's collection at Hampton, one specimen of this phalarope, which was killed late in October. I also found one other specimen in Mr. Turner's collection at Portsmouth.

Phalaropus lobatus. NORTHERN PHALAROPE. 223.

The Northern Phalarope is rarely seen. Mr. George Wentworth of Rollinsford, who is now in his eighty-second year, and who has been observing birds for more than fifty years, has three of these phalaropes in his collection, which he killed from a large flock off Wells Beach, just over the Maine line. He never saw this species before or since. Of all the younger collectors whom I have questioned, I have found none who claim to have seen it.

FAMILY RECURVIROSTRIDÆ.

Himantopus mexicanus. BLACK-NECKED STILT. 226.

Some years ago a summer visitor at Rye Beach brought a Black-necked Stilt to Mr. Shaw of Hampton to be mounted. It was mounted, but what became of the bird or the man who brought it, I have not been able to ascertain. It is one of the rarest birds that comes to our shores.

FAMILY SCOLOPACIDÆ.

Philohela minor. AMERICAN WOODCOCK. 228.

This much persecuted bird is steadily decreasing in numbers because of its unfortunate traits. It is a table delicacy, and therefore in demand by epicures. It will lie to a dog, and is easily killed by a gunner who is a fair shot. Between the gourmand and the sportsman the woodcock is on the highway to extinction. It is among the first spring arrivals, the earliest appearance that I have recorded being April 1. It may be heard on April nights and mornings, near low ground, uttering its cry, which is not unlike the call of a Night Hawk. It is especially erratic at such times, calling a few minutes, darting up into the air, circling around, and dropping down as precipitately as it departed, almost into the very tracks that it previously occupied. The course of the brook in the rear of Thompson hall is frequently visited by woodcock when migration is going on. Some years ago Mr. Albert Demeritt found a woodcock's nest, but such a find is not common. Although a few natives may be seen in August and September, the main flight from the north does not reach us until about the twentieth of October. In summer woodcock often frequent cornfields where they find plenty of shade, soft earth and worms—all desiderata from the woodcock's standpoint. Later they return to the alder runs and other moist, tangled places. When the leaves begin to fall and autumn rains inundate low lands, they retire to higher ground, where they find cover among the dense growth of gray birches, pines, and scrub apple trees, which have sprung up on many neglected farms. Like the partridge and quail, they have a way of startling their would-be murderers when they take flight. The two outer wing feathers, which are short and narrow, produce a whistling sound, that makes a green hunter forget his mission until it is too late to shoot. Its nest is placed on the ground among pines or other dense bushes.

Galinago delicata. WILSON'S SNIPE. 230.

This Snipe is a migrant of regular occurrence in both fresh and brackish marshes. I have found it here on the 7th of May, which is my only spring record, and at various times in the fall between September 17 and October 25. Sometimes it remains very late, and Mr. Shaw has once observed it at Hampton about the middle of December. I have several times seen snipe feeding on moist ploughed land after sundown and on foggy days. They visit the Newmarket marshes at Great Bay every season, and sometimes are found about the College reservoir. They depend upon their color to protect them from observation, and only fly as a last resort.

Macrorhamphus griseus. DOWITCHER. 231.

This Snipe regularly comes to the beach at Hampton between May 20 and 25, where it may be found on the sand in considerable numbers. It is also common during the autumnal migration, August and September, though I have not been able to get any exact dates.

Micropalama himantopus. STILT SANDPIPER. 233.

Stilt Sandpipers appear to be fairly regular, but not very common migrants. I find one in Mr. Shaw's collection that was taken at Hampton, and I read that Mr. William Brewster once secured ten at Rye Beach during a few weeks in August.

Tringa canutus. KNOT. 234.

The Knot, Robin Snipe, or Red-breasted Sandpiper, as it is variously called, is a large, handsome sandpiper of regular, and fairly common occurrence along the coast spring and fall. It is the largest of its tribe. Adults are quickly recognized by the reddish-brown color of their under parts, which is usually suggested at least on immature specimens.

Tringa maritima. PURPLE SANDPIPER. 235.

The Purple Sandpiper is an uncommon migrant, usually appearing late in the fall and early in spring. In eight local collections which I have examined, all within a few miles of the sea, and the accumulation of years, I have found but two specimens. One of these is in the possession of Mr. George Wentworth of Rollinsford, who killed it in January, while hunting for Eider Ducks.

Tringa maculata. PECTORAL SANDPIPER. 239.

The Pectoral Sandpiper is a common migrant on the coast, and is one of the few which sometimes pass in considerable numbers across the itnerior of the state, though not with the same regularity as nearer the sea. They are likely to be seen at any time between the latter part of August and the middle of October, though as a rule few remain after September. I have recorded them as early as August 20, and as late as October 10. Sometimes they may be found on the mud-flats, but far more often on shores or marshes bearing scattered herbage.

Tringa fuscicollis. WHITE-RUMPED SANDPIPER. 240.

White-rumped, or Bonaparte's Sandpipers, are abundant spring and autumn migrants along the beaches, coming and going with the tide of shore birds that pass this way as a miscellaneous family, on their semi-annual journeys to and fro.

Tringa bairdii. BAIRD'S SANDPIPER. 241.

The only evidence of this Sandpiper's presence that I have been able to find is in Stearns and Coues' "New England Bird Life" in which is cited a record from the Bulletin of the Nuttall Club, Vol. VI, page 61, to the effect that Mr. H. M. Spelman secured two at Rye Beach, August 26th, 1880. Its normal range is the interior of this continent, and its occurrence here on the coast is unusual.

Tringa minutilla. LEAST SANDPIPER. 242.

This gentle little Sandpiper is abundant along the coast, and rather common inland, where there is plenty of mud, from the middle of August till well into September. The main flight comes about the twentieth of August. It may be found on sandy shores, bare marshes, or mud-flats, and is usually seen in company with Plovers or other sandpipers.

Tringa alpina pacifica. RED-BACKED SANDPIPER. 243a.

The Red-backed Sandpiper is another spring and fall migrant, that is said to occur in tolerable abundance, coastwise, though in all the collections that have been made in this section, I have found but two specimens,—one in the possession of Mr. Turner of Portsmouth, and the other in Mr. George Wentworth's collection at Rollinsford.

Ereunetes pusillus. SEMIPALMATED SANDPIPER. 246.

This little Sandpiper is abundant, during the latter half of August and early in September at the beaches. I have found them very common on the flats at Hampton during the first week in September. They are here at the same time as the Least Sandpipers, and the two are often found together. The two species look much alike, and can hardly be distinguished one from the other before they are shot, though this averages somewhat the larger, and is usually grayish above, while the Least Sandpiper is brown. The feet, however, are distinctive, the Semipalmated having webs between the bases of all of its front toes, while the other has no webs whatever.

Ereunetes occidentalis. WESTERN SANDPIPER. 247.

In my private collection I have a specimen of this sandpiper taken at Hampton October 10, 1899. It was a female that had been wounded and thereby delayed on her southward journey. This species, which is a bird of the western portion of this country, occasionally strays this way in the fall of the year, far more often than is realized, probably, as to the casual notice it would appear only as an ordinary Semipalmated Sandpiper which happened to possess an unusually long bill. When compared with a series of skins of the semipalmated bird its excess of bill is plainly apparent. It is simply a Semipalmated Sandpiper that has lived in the western and northwestern regions for so many generations as to become slightly differentiated from the eastern form.

Calidris arenaria. SANDERLING. 248.

The Sanderling is distinctively a "beach bird," belonging by color. structure, and custom to the sandy shore. Its gray fall plumage is so harmonious with sand, that it easily escapes notice when at a little distance. Its feet, having only three toes like the Plover's, furnish instant evidence of its identity, as this is our only sandpiper lacking a hind toe. They are very common at Hampton and other beaches during the latter part of August and the first of September.

Limosa fedoa. MARBLED GODWIT. 249.

The Marbled Godwit, while common enough in the west and south, is rare in New England. Excepting the Sickle-billed Curlew, it is the largest of the shore birds. The only actual occurrence of this bird about here, that I know of, is related by Mr. William Brewster, who tells me that he saw one shot some years since at Rye. It has no white markings, being therefore readily distinguished from the Hudsonian, which has white upper tail coverts.

Limosa hæmastica. HUDSONIAN GODWIT. 251.

The Hudsonian Godwit is a migrant of somewhat irregular occurrence on our coast. I have known it to be taken in October at Hampton, where it is locally called the Goose Bird, on account of its white rump. The Godwits are distinguished from sandpipers by their large size and by their bills which are long and turned slightly upward towards the tip.

Totanus melanoleucus. GREATER YELLOW-LEGS. 254.

The Winter Yellow-legs, as this species is commonly called by gunners, is to be found in considerable numbers, spring and fall, wherever there are marshes or flats. They are here from the last of August till November, in autumn, and about the middle of May in spring. Actual dates and places on my record read: Hampton, September 5 and October 27; Great Bay, May 13; Barrington, Swain's pond, Sept. 19. It is a favorite with sportsmen on account of its large size, and the ease with which it is decoyed. The stomachs of two Yellow-legs taken at Barrington in September contained small predaceous diving beetles and dragon fly larvæ.

Totanus flavipes. LESSER YELLOW-LEGS. 255.

The Lesser or Summer Yellow-legs, is a common migrant in August and September, but beach gunners say they never see it in the spring, when in haste to reach its northern breeding grounds, probably it keeps far to the eastward of our coast, in a direct course from southern to northern shores. In its food and general habits it is similar to the Greater Yellow-legs.

Helodromus solitarius. SOLITARY SANDPIPER. 256.

Solitary Sandpipers may be found common, singly or in small flocks, in August and September, and again in the last half of May and early June,—in one instance a pair remained at Hampton till June 10. They frequent grassy shores and inundated marshes or meadows, in preference to sandy beaches. Like the Yellow-legs they are real waders, frequently going into water quite up to their bodies, in their search for aquatic insects and larvæ. The Solitary and Spotted Sandpipers are the only sandpipers commonly seen about fresh water. They may be distinguished as they fly by the tail, the Solitary having the outer rectrices mainly white, while in the Spotted Sandpiper's tail there are no white feathers.

Symphemia semipalmata. WILLET. 258.

This large Sandpiper, which measures a little more than the Greater Yellow-legs, is readily known by its blue legs, its stout, straight bill, and semipalmated feet. It is a rather irregular migrant along the coast, generally seen in autumn, if at all.

Bartramia longicauda. BARTRAMIAN SANDPIPER. 261.

The Bartramian Sandpiper is a common summer resident on the high lands of this state, but it is not often seen here. Occasionally one is shot on the marshes in August or September, and I have twice heard the trilled cry of a migrant going over the village, once on the eleventh of May and once on the twenty-ninth of August. On many a hill farm nearer the mountains, this trim bird is a familiar object in the fields and pastures. Its gentle ways have found favor with the housewife, who calls it the "little turkey," because, as it runs through the grass, it suggests her favorite poultry. The small boy knows the clear trilled whistle, which it utters as it flies high overhead on still mornings in the breeding season. He observes its anxiety for the safety of its young during the hay harvest, and after the fields are cleared of their burden, and left brown and bare, he is able to find them abundantly on the hills. He calls them "Plovers." They begin to leave the hills in August, and the flight continues till the first of October. The anomalous relation of structure to habit, realized in this bird, is not easy to account for. A water bird that avoids the water is a curiosity.

Tryngites subruficollis. BUFF-BREASTED SANDPIPER. 262.

This Sandpiper is one of the rarest that appear on our coast. I have found but one specimen of it in all my searching, and that one is in the possession of Mr. Joseph Turner of Portsmouth.

Actitis macularia. SPOTTED SANDPIPER. 263.

The Spotted Sandpiper is the only one of its tribe to make its home with us during the summer. It is a bird of the shore rather than of the marsh, and the extensive flats exposed by the retreating tide offer it a capital feeding ground in this neighborhood. It is a very busy bird, energetic to a degree, yet not wildly so, for now and then it may be seen to stop and assume a preoccupied air as if deep in meditation, while its tail bobs on, seemingly by force of habit. Great Bay is the home of many Spotted Sandpipers. They are a common sight along its shores, and their cheerful *peet, weet, weet, weet,* uttered as they fly away, is hail and farewell to the disturber. The nest is made in a slight depression in the ground, usually at no great distance from the water. I was much amused one day while rambling along the shore near Adams's Point, to see two of these "pipers" standing patiently on a rail fence waiting for ebb tide, when they might go back to their beloved mud again. It was during a season of high tides when the ordinary shore line was well under water, and the idle waiting of such ordinarily active birds seemed almost pathetic.

Numenius longirostris. LONG-BILLED CURLEW. 264.

The Long-billed Curlew, or Sickle-bill, is the largest of its family. It is a coast bird seldom seen. I have found but two specimens, in my perigrinations among the ornithologists of this locality. One is owned by Mr. Turner of Portsmouth and the other by Mr. George Wentworth of Rollinsford.

Numenius hudsonicus. HUDSONIAN CURLEW. 265.

This Curlew is usually found coastwise in August and September, but it belongs to the list of irregular visitants, and a whole season may pass when even vigilant gunners do not see a single specimen. The Curlews are distinguished from the sandpipers by their superior size and decurved bills.

FAMILY CHARADRIIDÆ.

Squatarola squatarola. BLACK-BELLIED PLOVER. 270.

The Black-bellied Plover, or Beetle-head, as gunners call it, is one of the less common shore birds seen only during its migration. I am told that at Hampton they generally fly low, and rarely come ashore. I have found several specimens in the collections I have examined.

Charadrius dominicus. AMERICAN GOLDEN PLOVER. 272.

This Plover is a regular, though scarcely an abundant, visitant along the coast in May, August, September, and October. About the middle of October, 1900, there was a flight at Hampton, from which several were secured. As a usual thing, gunners infrequently report it. It prefers lowly herbaceous marshes to sandy shores.

Aegialitis vocifera. KILLDEER. 273.

I am assured by Mr. Wentworth of Rollinsford that years ago Killdeers nested regularly on his farm. Mr. Turner has also told me that in his boyhood days they bred about the marshes near Portsmouth, and that their cry, *killdee*, was a familiar sound. Now, they are infrequent spring and fall visitors, unknown to many of the younger generation of shore gunners. According to Mr. Shaw, a small flock came to Hampton some years since, with a heavy storm late in December, and remained through the following January and February. Most of the time they stayed among the rocks about Boar's Head though they sometimes fed in the roads.

Aegialitis semipalmata. SEMIPALMATED PLOVER. 274.

The Semipalmated, or Ring-neck Plover, as it is often called, is abundant on every beach, and not uncommon in suitable localities at considerable distances from the sea, during the latter half of August and early September. Their migration is at its height about the twenty-fifth of August. The spring wave passes us about the middle of May. Incessant persecution has made them wary, and while they ply their craft, seemingly oblivious of their surroundings, they are nevertheless good judges of a fair shooting distance, and rarely allow a man to come openly within it. Their light gray backs render them difficult to see against a background of sand.

Aegialitis meloda. PIPING PLOVER. 277.

This Plover appears to be a regular migrant along our coasts; but it is far less abundant than the Ring-neck. I am told that it formerly bred at Wells Beach, but at present I believe it does not do so anywhere in this region.

FAMILY APHRIZIDÆ.

Arenaria interpres. TURNSTONE. 283.

Turnstones regularly migrate, spring and fall, along the coast, but are always comparatively few in numbers. They are most likely to be seen on rocky shores in August or September. Although resembling sandpipers in their general appearance, they are to be distinguished by their bills which are rather strong and acutely tipped.

ORDER GALLINÆ.

FAMILY TETRAONIDÆ.

Colinus virginianus. BOB-WHITE. 289.

While the Quail is a permanent resident, its numbers vary greatly from year to year. In the fall of 1897 they were plentiful, not less than fifty living within a radius of two miles of the college. Comparatively few were shot, yet in the spring they were nearly all gone, and for the next two years quail were scarce. In 1900 they were fully as abundant as in 1897. Quail have less food resources than partridges, and consequently suffer more from deep snows. This is the reason sometimes assigned for the scarcity of quail in northern New England, but it seems to me hardly applicable here, as there is always an abundance of food above the snow, in the great quantities of barberries remaining on the bushes all winter and of which quail eat freely. They live principally on insects and seeds and are frequenters of field and pastures rather than woodland. Ten quail, which I have examined, had eaten grasshoppers, spiders, crickets, cutworms, stink bugs, ground beetles, leaves of white clover, ragweed seed, barberries, poison-ivy berries, black alder berries, and oats. The oats were found in birds taken in the highway after a snowfall, and were undoubtedly procured from horse droppings. Quail depend upon their protective coloration to escape observation. They skulk whenever they can, but when there is no chance to run away unobserved, they remain motionless until an intruder is almost upon them before they flush. When they do go, however, they rise vertically for a few feet as if shot from a catapult, and then speed away with perplexing swiftness. The clear whistled "I'm Bob-white" of the male may be heard from April till August. During this time he becomes more or less of a wanderer and sometimes strays far away from his family, but he is none the less cheerful on that account, and his whistling continues with undiminished vigor. They are prolific breeders, laying about a dozen eggs for a sitting, and frequently rearing two broods in a summer. It is a common thing to find flocks in September, which are not more than half grown.

Bonasa umbellus. RUFFED GROUSE. 300.

The Ruffed Grouse, or Partridge, as New England people call it, is a common resident. This region is in the border land between the habitat of the Canadian form (*Banasa umbellus togata*) and that of *umbellus* proper, and the majority of the birds can hardly be said to be either the one form or the other. As a rule, however, the gray Canadian form predominates. Out of a dozen specimens not more than one will be distinctly tawny; the majority will have gray tails; and one or two will have gray backs throughout. I have examined more than thirty that have been killed in this vicinity, and have found but two full-grown males with tawny tails. Females average browner than the males. The food of the "partridge" is chiefly vegetable—berries, nuts, leaves, twigs—though insects are often eaten by them.

In the crops and gizzards of twenty-four Ruffed Grouse I have found the following kinds of food: Seeds of herbs, red and white oak acorns, smooth sumach berries, maple seeds, barberries, apples, thorn apples, dogwood berries, choke cherries, black cherries, blackberries, blueberries, withe-rod berries, partridge-berries; leaves of the following: White clover, red clover, apple, crowfoot, goldenrod, sheep laurel, dandelion, sheep sorrel, everlastings, barren strawberry; and also the following buds: Hazel nut, rock maple, apple, birch; also the following insects: Caterpillars, grasshoppers, and crickets.

There is considerable variation in the number of partridges found here from year to year, owing chiefly, I believe, to weather influences on the eggs and young. In spite of being persistently hunted they hold their own, their education having kept pace with the times. It is interesting to note that more than a hundred years ago fears of the extinction of this species were entertained by "certain epicureans," according to Belknap's History of New Hampshire. Now that the practice of snaring is so nearly abolished by wholesome statute, I see no reason why this king of our game birds may not continue to entice and disappoint sportsmen indefinitely. Their color is such that only under exceptional circumstances can they be seen at twenty yards, so long as they remain motionless. They rarely lie to a dog long enough for a hunter to get into position for a fair shot. They are past-masters in the art of keeping a tree between themselves and their pursuer. They live in brushy places, and fly so swiftly that wing-shooting is hazardous, though to the man who shoots for the fun of shooting, more than for count, they offer great sport. Although partridges do not migrate, in the accepted sense of that term, yet they are accustomed to certain periodic movements according to season. An inventory of the food named above will at once suggest that a change of abiding place at certain times is necessary. Leaves are eaten the year round, and are found in most of the bird's haunts. In early summer insects attract them to the alder runs. In August berry patches are sought. September and October are spent in such miscellaneous growths as are found on deserted farms, as for instance in an old orchard, where have been allowed to grow gray birches, pines, and here and there a black cherry tree. During the winter months we find them where thick pines and patches of barberry bushes are contiguous. A famous winter resort for them is the tract of barberry and juniper-burdened soil extending from the village to Adams's Point.

The partridge's nest is usually placed at the base of a tree, apparently with a view to having only one line of approach, and this line is always faced as the old bird sits. She will not leave her nest, when approached, till certain she is discovered, when she glides away with as little demonstration as possible. I have seen a well-trained pointer, with as good a nose for grouse as any dog living, pass at a walk within six feet of a partridge on her nest without being aware of her presence. Though I have never been able to test this matter more than once, I suspect the sitting bird gives off little or no scent.

ORDER COLUMBÆ.

FAMILY COLUMBIDÆ.

Ectopistes migratorius. PASSENGER PIGEON. 315.

Although I have kept out a weather eye for all sorts of birds, I have not seen a single Wild Pigeon during the last twenty years, and I fear it is hardly entitled to a place on a list of the birds of Durham, or ever will be again. Though decreasing in numbers, pigeons were not rare up to within twenty-five years. I have not known one to be killed or even seen for at least fifteen years. This section used to be a favored resort for pigeons, and many fell victim to net and gun. As an article of food, they were one of the household staples, in the fall, when nuts and grain were ripe. This pigeon is sometimes confounded with the Mourning Dove, to which it bears some resemblance in form, but the dove is much smaller, and lacks the splendid coloring of the Wild Pigeon.

Zenaidura macroura. MOURNING DOVE. 316.

The Mourning, or Turtle Dove, is of irregular but not rare occurrence. In 1898 several were seen at various times between April and the middle of December, the fifteenth of the latter month being the latest date of its occurrence I have been able to record. When flushed the vibration of its wings makes a whistling sound that is very noticeable. It has fed on weed seeds, whenever I have observed it, and while on the ground is very busy with its gleaning, stopping only for an occasional hasty glance around for danger. When thus occupied, it is easily approached. When satisfied, it goes to a tree for rest in preference to remaining on the ground.

ORDER RAPTORES.

FAMILY CATHARTIDÆ.

Catharista urubu. BLACK VULTURE. 326.

In the spring of 1887 or 1888 a Black Vulture appeared at the home of Oliver Dixon, butcher, at Eliot, Me. It remained there several days, feeding on slaughter house refuse. It alighted on the wood pile and outbuildings with the utmost freedom, evidently not realizing that it was beyond the precincts of southern protection. Mrs. Dixon finally had it shot, and now is pleased to show the mounted skin to any one who may wish to see it.

FAMILY FALCONIDÆ.

Circus hudsonius. MARSH HAWK. 331.

The Marsh Hawks are rather uncommon. Their habit of harrying for their prey over fields and meadows brings them into notice wherever they range, and therefore their abundance is more readily determined than that of our other hawks. The most noticeable color-characteristic of this species is its white rump, which is usually to be seen as the bird flies and serves to identify it at a great distance. The food of the Marsh Hawk is generally exemplary, mice forming a greater per cent than anything else. Sometimes, however, they fall into evil ways, and destroy birds and even poultry. I know of one instance where a Marsh Hawk regularly levied on a farmyard for her food, and was finally caught in a trap, but this was an exceptional case. An adult female which came to my hand in August showed both right and left ovaries of equal size, though only the left oviduct was functional. They build coarse nests on the ground in grassy swamps. I have seen them here from the middle of April to the middle of October.

Accipiter velox. SHARP-SHINNED HAWK. 332.

This vicious little hawk is rather common from April till late in November. It is notorious as a killer of small birds and chickens, and occupies a prominent place on our brief list of noxious birds. Its audacity when hungry is astonishing. I have seen one pounce on a chicken, right in the village, and wait till it had very deliberately fixed its claws in the chicken's back, eyeing at the same time a man, just across the street, with the greatest insolence imaginable. I once saw one of these hawks dash among a flock of goldfinches that were feeding in a weedy run. They took flight precipitately in all directions, but he singled out one and gave chase. No matter how that goldfinch turned, the hawk was always headed for his mark and constantly nearing it. It seemed as if every tack of the little bird was anticipated by its relentless pursuer. I suppose less than a minute after the hawk's appearance he had the goldfinch in his clutches. The final scene was enacted within thirty feet of my face, yet such was the lightning-like quickness of the hawk's grasp, that I could not perceive it. I saw the birds about eight inches apart; I heard the cruel sound of claws in contact with the goldfinch's pinions; I saw the triumphant murderer holding his luckless victim, one of its little wings still spread, but the act of capture was like a trick by sleight of hand. The hawk's motion was not arrested in the least, at the capture. He kept on straight ahead for a short distance, till his momentum was reduced, then turned about and descended to a wall, where he began at once to enjoy the fruit of his labors.

Sharp-shinned Hawks build their nests in pine or hemlock woods at varying distances from the ground. They are very noisy about their chosen home and may be easily found during the earlier days of nesting by that means. Both sexes attend to house building with much zest. The nest is composed largely of sticks, and from the ground looks like a crow's nest, except that it is smaller. This species is often confused with the Pigeon Hawk (*Falco columbarus*), but the latter, like all true falcons, has the maxilla toothed, while *velox* has not.

Accipiter cooperii. COOPER'S HAWK. 333.

This species occurs as a summer resident in about the same numbers, and for about the same period as the last, which it resembles in color and habits, but exceeds in size. Its record as a destroyer of birds and chickens is notoriously bad. Its nest is placed in evergreen trees as a rule, though seldom with any attempt at concealment. The young come out of the shell about the first of June.

Accipiter atricapillus. GOSHAWK. 334.

The Goshawk is not ordinarily found here in summer, but from the first of October until April or May, it may occasionally be seen. In four years I have observed but three of these hawks—an adult seen in January, 1899, another in November of the same year, and an immature female, which was shot September 28, 1900. This last one, upon dissection, revealed chicken in its gullet and stomach. As recorded in the case of the Marsh Hawk, this specimen had two ovaries of equal size and similar appearance, but only the left oviduct was visible. This hawk has all the fierce persistency of the Sharp-shinned, and Cooper's hawk, and annually destroys much poultry and game. It is the only hawk likely to be seen in the farmyard in winter.

Buteo borealis. RED-TAILED HAWK. 337.

Red-tailed Hawks do not nest about here so far as I have been able to discover, and from a knowledge of their tastes, I should not expect them to. I suspect, however, if search were made about the Blue Hills of Strafford, they would be found breeding. As a rule they prefer more broken hill country than is found about here. In the migrating season, March, September, and October, they are not uncommon. They are generally inoffensive hawks, content to feed on mice and other small quadrupeds, with an occasional frog or insect. Now and then they kill birds, and sometimes become a menace to poultry, but not often. They are quite hardy and are sometimes seen here in winter.

Buteo lineatus. RED-SHOULDERED HAWK. 339.

This is the common "hen hawk" seen about the woods from the last of March till November. It breeds anywhere in the larger woods, both in evergreen and deciduous trees. Its food habits are practically like those of the Red-tail, which it resembles in many respects. It may be distinguished from the Red-tail as it soars overhead by its tail, which shows the alternate light and dark bands on the under side, the Red-tail's tail being silvery white beneath, giving no suggestion of the color of the upper surface. The habit of soaring, in which *Buteos* indulge, is a pastime, and not for the purpose of procuring food. Their plan of hunting is to perch in a tree that commands a wide view of a pasture or meadow, where they wait, ready to pounce upon the first mouse or shrew or other small creature, that shows its unlucky head. Insects are eaten by this hawk to a considerable extent. The stomach of one killed by me the last of May contained bones of a mouse, a cutworm, a hairy caterpillar, a beetle, and a small fly. I have seen one of these hawks alight in the mill-pond, near shore, where the water was only a few inches deep to catch some aquatic creature which it found there.

Buteo platypterus. BROAD-WINGED HAWK. 343.

Broad-winged Hawks are not common, but they are not unlikely to appear at any time except winter, though for the most part they are migrants, May, August and September being their months of passage. The only specimen that I have seen in this locality I found in September, in Madbury. It was an immature male that had been shot and left hanging by the roadside. This species is even less harmful to poultry than either of the other *Buteos*, being more inclined to keep in the woods.

Archibuteo lagopus sancti-johannis. AMERICAN ROUGH-LEGGED HAWK. 347a.

Mr. Shaw reports this hawk to be a regular early spring and late fall migrant at Hampton. It is a harmless devourer of mice, moles, frogs, and similar vermin, rarely seen away from tide water. Although its plumage has a number of color phases, it may always be recognized by its legs, which are feathered to the toes.

Haliaetus leucocephalus. BALD EAGLE. 352.

Now and then a Bald Eagle may be observed down by Great Bay either at rest or soaring high overhead, but such an occurrence is comparatively rare, for I do not average to see one a year. They are likely to be seen here at any season, looking for fish, which they prefer above all other articles of diet. While they have an unenviable reputation as parasites upon the Osprey, as a rule they catch fish on their own hook, and undoubtedly procure most of their food by honest efforts. They are generally wary and difficult to approach, but on one occasion, a few summers since, a fine adult specimen at Adams's Point allowed a whole barge load of nature students to alight and examine him at a distance of fifteen rods.

The majority of this species which we see are immature, lacking the white head and tail which is the insignia of age.

Falco columbarius. PIGEON HAWK. 357.

The Pigeon is a regular but rather scarce migrant, usually appearing in May. August, and September. In size and color it bears a strong resemblance to the Sharp-shinned Hawk, but its acute wings and steady, rapid flight enable one to recognize it as it flies; while its toothed bill is diagnostic, when in hand, as was indicated in the account of the Sharp-shinned Hawk.

Falco sparverious. SPARROW HAWK. 360.

The Sparrow Hawk is a summer resident, in small numbers, but during the migration periods it is common. April 13 is the earliest spring record that I have noted. Few are seen in the fall after October 1. Insects constitute their principal diet. A September stomach which I opened was filled with grasshoppers, although the bird was killed at half past eight in the morning. They hunt in fields and pastures, perching on some high object where they can keep watch of the ground beneath and around them. On May 16, 1900, I found a pair nesting near Piscataqua bridge. The nest was in a hollow maple which stood in a pasture but a few rods from an unoccupied house. It had been visited by some boys, who told me it contained five eggs and that the female had been sitting three or four days. The boys did not molest the nest and the hawks did not seriously object to their coming. I was informed that a pair had been in that vicinity several summers, but that that was the first season they had occupied the maple. I was interested to observe that the female kept at a safe distance while I was investigating the nesting tree, but that the male dived at me many times in the same manner as an offended swallow, though without uttering a sound.

Pandion haliaëtus carolinensis. American Osprey. 364.

This locality is a favorite hunting ground for Ospreys, which are frequently seen coursing over the river and bay, and less often perched near the shore on a dead-topped tree. They do not breed here, but, excepting a few weeks in June and July, when family duties engage most of them elsewhere, they are common from April to October. They dive for their fish either from a tree, or as they harry to and fro at a height of from thirty to forty feet above the water. Often they are completely immersed for a short time. When they come to the surface, they usually lie still for an instant, and then, by a great effort with their long wings, rise and fly steadily away, bearing their writhing prey in their talons.

Family BUBONIDÆ.

Asio wilsonianus. American Long-eared Owl. 366.

This owl is rather common, and is probably a permanent resident, though I have not yet found it here in winter. At all seasons it may be looked for in pine woods, especially those of younger growth, such as are found adjacent to the college reservoir. This owl's food consists chiefly of mice, other small animals, birds and insects. I have known them to hunt sparrows which were going to roost in the pines. A few years ago Mr. Albert Demeritt found them nesting near his house. The nest is not unlike that of the crow in its external appearance.

Asio accipitrinus. Short-eared Owl. 367.

Short-eared Owls are rather rare in this immediate neighborhood, but on the marshes along the coast, they are more common. The food habits of this species are substantially like those of the last. But its hunting range is quite different, for this owl harries marsh-land, while the other prefers high ground. The two *Asios* are similar in size, but are quickly distinguished by the ear tufts, *wilsonianus* having tufts an inch or more in length, while those of *accipitrinus* are not more than a third as long.

Syrnium nebulosum. BARRED OWL. 368.

Barred Owls are presumably residents during the year, but I have seen them only in winter when they appear to be more abundant than any other species. Mice contribute largely to their sustenance; moles, shrews, birds, and insects are also taken to a limited extent. The nest is usually built in a hollow tree some time in April. A small female that was brought to me in the spring of 1898, was so light colored as to suggest a snowy owl. It was smaller than any male I ever saw, though, as is well known, females are usually larger than males.

Nyctala tengmalmi richardsoni. RICHARDSON'S OWL. 371.

Richardson's is the rarest owl that I have to record. It is an Arctic species, seldom seen anywhere in this state. Some years ago one was killed in the city of Dover, and now is in the collection of Mr. Wentworth of that city. In its general appearance, this owl resembles the Saw-whet, though it is slightly larger.

Nyctala acadica. SAW-WHET OWL. 372.

Just how abundant Saw-whets are, is hard to say because they are such little fellows that it is like hunting for a needle in a hay mow to look for one. They are residents throughout the year, but like all of their kind they are generally seen only in winter.

Their food habits are above reproach, mice and insects being the larger part of their food. I have seen two here in four years. The first was disclosed to me by some chickadees which were making a good deal of disturbance in a small pine perhaps ten feet high. The pine, which was quite dense, seemed literally alive with chickadees. They would come into the tree from the farther side, pass through it and come out looking alert and slick, all the while saying *dee*, *dee*, *dee*, as if very much agitated. After each chickadee had passed through the tree, he would alight near by, for a moment, and then return to take his place in this continuous performance of keeping a steady flow of scolding titmice through the tree. Look as I would, I could not discern the cause of agitation, and presently, I went close to the tree, when out popped a Saw-whet Owl in great haste to gain the woods, which he did with alacrity, followed by the whole troupe of chickadees. I waited, hoping they would find him again, but he evidently made good his escape, for I heard no more complaint from his tormentors.

About the twentieth of March, 1899, we had a fall of several inches of snow, followed by rain, which froze as it fell until a crust of ice was formed sufficient to hold the heaviest man. The weather continued cold, and for ten days that ice sheet was an impassable barrier between earth and air. The few land birds here suffered severely, and undoubtedly many died, as even the tree trunks were more than half covered and the branches were wholly encased. Near the end of this trying period, Mr. John Drew found a Saw-whet Owl in the road as he was returning one afternoon from Dover. It was unable to fly, and he caught it. He tried to keep the owl alive, but it died before morning, and by the kindness of its captor came into my possession. Dissection showed plainly that the bird had starved. The ice blockade was as effective to mice beneath, as to birds above it, but while it was death to the owl, it undoubtedly saved the life of many a mouse.

Megascops asio. SCREECH OWL. 373.

The Screech Owl is a permanent resident, and not uncommon in pine woods. Its food is largely insectivorous, though mice, birds, snakes, frogs, and worms are on its bill of fare. Instead of being shot at sight as it is, it, in common with all of our owls except the Great Horned Owl, should be respected as an ally, and treated as the friend it certainly is. It nests usually in hollow trees.

Bubo virginianus. GREAT HORNED OWL. 375.

Great Horned Owls are permanent residents, and may be seen oftener here than anywhere else in the state that I know of. It is commonly supposed that owls cannot see well in the daytime, but any one who has tried to approach Great Horned Owls knows better. There is not a bird on the list with keener vision even in sunshine. They have always been credited with acute hearing powers, and nobody who has examined an owl's ear can doubt it. However, I have always been able to approach this species much nearer when hidden by a large tree or other object than when exposed to view by ever so little. The whereabouts of these owls are often indicated by crows, which cherish a bitter hatred for them, and probably with good reason, as they are not above eating crow. Whenever I have been led to one of these owls by the outcry of the crows, I have always noticed that the owl became aware of my presence before the crows were. The only way I have succeeded in getting a good view of an owl, under such circumstances, has been to get near enough to see by the actions of the crows about where the owl was, and then, throwing caution aside, to run forward as quickly as possible without any attempt to avoid noise. By this means I have been able to surprise them into forgetting to fly, till I had stopped at close quarters.

This owl is one of the few birds which are distinctly noxious, though it is not abundant enough to be of very much importance. Its food includes poultry, game, and small birds, skunks, rabbits, rats, mice, squirrels, insects, and fish. Fowls roosting out of doors are very likely to be attacked. Skunks are a common prey. One stomach examined by me in November contained chicken bones and the remains of at least two caterpillars of the species *Eacles imperialis*.

Great Horned Owls breed regularly in this vicinity. Two nests containing half grown young were found by Mr. D. B. Bartlett, April 26, 1899. One was in the college woods, in a nest occupied two years previously by a Red-shouldered Hawk. Beside the young this nest contained a skunk partially eaten, while on the ground beneath were scattered the remnants of many meals. In this instance, the parents showed an amount of finesse that is worthy to be related. The two young were taken from the nest and placed on the ground near by, in the hope that the old birds would come and be shot. Before long the hooting of an owl allured one of the young men on guard away from the young. The hooting was at first near at hand, but it gradually receded as the man with the gun advanced. Presently, his companion who remained behind to keep an eye on the prisoners was surprised to see one of the parents swoop down and clutch one of the young in her talons, making off with it regardless of the hurriedly-aimed gun that roared at her back. On the same day the other nest, containing young also, was found in the heavy timber owned by Mr. Albert Demeritt. Both nests were in pine trees. The eggs must have been deposited before the middle of March.

Nyctea nyctea. SNOWY OWL. 376.

The beautiful Snowy Owl, though rarely seen alive by most people, is more often found here in the tide-water district than anywhere else in the state. Hampton sand-hills and marshes have been known to yield no less than fifteen in a single season, but this is an exceptional record. Many winters pass when there is not one to be seen. They are more often found in fall and spring than in midwinter, October and November, March and April being their regular months here. Ducks, grebes, auks, and other water fowl are sometimes killed by them, but mice appear to be taken in greater quantities than anything else. The milky whiteness which characterizes the aspect of this owl enables one to identify it at a glance.

Surnia ulula caparoch. AMERICAN HAWK OWL. 377a.

The Hawk Owl is an irregular winter visitant. One recently shot near Portsmouth was mounted by Mr. Turner, in whose possession I saw it. Another, owned by Mr. Wentworth of Dover, was killed near Piscataqua bridge. Thus it appears that while this owl is uncommon here, it is not so rare as many suppose.

ORDER COCCYGES.

FAMILY CUCULIDÆ.

Coccyzus americana. YELLOW-BILLED CUCKOO. 387.

The Yellow-billed Cuckoo is an irregular summer visitant. Mr. Shaw has taken it at Hampton, and I have found it once or twice in the central portion of the state. Its food is essentially the same as that of the next species. I have usually found it in swampy woods. Although the two species look very much alike, this may be identified when near at hand by the bill which is more than half yellow, and also by the tail which is black beneath, except the tip of each feather which is white.

Coccyzus erythrophthalmus. BLACK-BILLED CUCKOO. 388.

This is the cuckoo commonly seen in our orchards and thickets. It comes from the south about the middle of May—in 1898 and 1899 I first saw it on the thirteenth, and in 1900 on the twentieth. Most of them go in September, though I have seen them as late as the fifth of October. The Cuckoo is a destroyer of caterpillars, and as such is worthy of all encouragement. In May and June I have often seen it in orchards engaged in its beneficent work. In September it leaves the thickets, where we are accustomed to see it in spring and summer, and goes to the oak and hickory trees where caterpillars of the genus *Edema* and others are found at that season. This is an evident change of haunt with a change of food supply. This cuckoo's nest is a slimsy structure of small sticks usually placed in a low pine or other scrubby tree.

FAMILY ALCEDINIDÆ.

Ceryle alcyon. BELTED KINGFISHER. 390.

Oyster river is a famous hunting range for Kingfishers. Living as they do almost wholly upon fish, they are able to find food so long as there is plenty of open water, and although the majority go south in

November, it is not surprising to see one at any time in the year. The northward movement reaches us about the twentieth of April. A pair usually nests in some of the banks near Bunker's bridge. They are especially noticeable in September, when they are noisy and even sportive. As a rule they are wary, and they have reason to be, for no bird is more often shot at "just for fun." They understand the power of gunpowder very well, and usually keep at a safe distance, though if left unmolested they become quite tame.

ORDER PICI.

FAMILY PICIDÆ.

Dryobates villosus. HAIRY WOODPECKER. 393.

Hairy Woodpeckers are tolerable common permanent residents, though they are not so plentiful that I would agree to find one on any given day. Their food habits are not unlike those of the Downy Woodpecker. The college woods and the timber lot belonging to Mr. Albert Demeritt are the most favorable places to look for them that I know of near the college. As a rule, they prefer large trees and spend most of their time in the woods, though orchard and roadside trees are not infrequently visited. The nest is usually made in a dead portion of a living tree. It is readily found by looking for chips on the ground in May. Most of the chips taken from the nesting hole are simply brought to the door and dropped, so the ground beneath is whitened.

Dryobates pubescens. DOWNY WOODPECKER. 394.

This is the common species so often seen associating with chickadees and nuthatches in cold weather. It is then quite familiar, and will come to the window-sill with its friends to get bits of meat that are sometimes put out by bird lovers. The stomach of a June specimen contained four beetles, two centipedes, two carpenter ants, and two beetle larvæ. A September specimen had eaten one adult and one larval beetle. It is not addicted to any particular kind or size of tree, but searches all with equal diligence. Any tree infested by borers becomes the woodpecker's asylum. The holes he pecks are small, and far less harmful than the borer that came out of it. Woodpeckers do not peck holes in sound trees, and whoever sees one at work on his tree may be sure there is trouble with it, and that the bird can remedy it better than he can. Woodpeckers should be encouraged to visit orchards, as they are one of its most efficient protectors. The nest of this species is similar to that of the last, and similarly situated. Both species excavate holes in which to sleep. Such holes are made with far less care than those for nests, and no effort is made at concealment. I well remember seeing a Downy go to bed one chilly October night some years ago. I was one of a surveying party at work on a lot of land which had recently been cleared of both wood and timber. Just at dusk a woodpecker came flying over the lot and alighted on a decayed birch stub. He hitched about, pecking half heartedly, evidently disconcerted by our presence. However, after several minutes of desultory pecking, he edged round to a hole and popped into it without further ceremony.

Picoides arcticus. ARCTIC THREE-TOED WOODPECKER. 400.

I have been surprised at the abundance of this woodpecker here. During the winter of 1897–98 a local sportsman shot two females, one of which was brought to me. In the fall of 1899, four others were recorded as follows: October 3, a male, brought in by a gunner; October 21, a female shot; November 16, a female seen; November 20, a male seen. Those killed were taken by gunners who had never seen such a bird before, and were brought in for identification. The living were found in the college pines. All were found on pines or hemlocks. Almost every collection which I have examined contains one or more. In the spring of 1900 I found in the college woods two hemlocks, recently dead, from which the outer bark had been entirely removed during the preceding winter by these woodpeckers. Their work is distinctive, and may be recognized wherever found. Arctic Woodpeckers are not usually shy. They may be recognized on sight by their color, the back being wholly black.

Sphyrapicus varius. YELLOW-BELLIED SAPSUCKER. 402.

I have seen but three examples of this woodpecker in four years. The first, a young bird evidently migrating, was feeding on sour gum fruit September 30; the second was in oak woods May 2; the third was in an apple orchard October 5. These dates give a hint as to when Yellow-bellied Woodpeckers may be expected, as they are only migrants here, though they undoubtedly breed no farther away than the hills of Northwood or Strafford. Its food habits differ considerably from those of its congeners, inasmuch as it is to quite an extent a vegetarian—berries, seeds, and the cambium layer and sap of trees being consumed freely. Trees having sweet sap are laid under a special contribution, whence the bird's common name, Sapsucker. I have seen a black birch which a family of Sapsuckers had tapped, and were tippling at with great assiduity. The sap issued through a number of holes which had been made in the bark, and was soon evaporated to a sweet syrup. The woodpeckers appeared to remain continually in the woods in the vicinity of the birch, and came so often for a taste of the sweet that it was rare when there was not at least one partaking. But the feast was not enjoyed by the woodpeckers alone, as many humming birds, bees and flies came for a share.

In size this woodpecker is like the Hairy, though it may be readily told at a distance by the large white bar on its wings, and also by its cry, which is wholly unlike that of any of our common woodpeckers.

Ceophlœus pileatus. PILEATED WOODPECKER. 405.

This giant woodpecker, nearly equal in size to a crow, is a rarity. Mr. Shute's collection at Newmarket contains one or two that were taken at Lee some years ago, but there are few people about here that have ever seen one, though a little farther inland, where there is more hard wood, they are not very uncommon. The power of one of these birds and the racket he can make when hard at work is astonishing. I have seen one on a dying oak, on a portion of which the bark was loose and gave shelter to more or less insects. He began low and worked upward, throwing, right and left, strips of bark a foot long, and gathering the insects as they hurried to secrete themselves. When at work on resounding wood, his blows sound as if made by a carpenter's hammer. His regular diet consists of Cerambycid beetle larvæ, or "borers" as they are commonly termed, beetles, ants, and other insects that find shelter on, or in trees. In summer and autumn he sometimes eats fruit, and I have known one to come daily to a black cherry tree for cherries.

Melanerpes erythrocephalus. RED-HEADED WOODPECKER. 406.

This is an abundant resident in the west, but a rarity here. I believe Mr. Shaw's collection at Hampton contains two specimens in immature plumage. The adult is a handsome bird, with its red head and neck, its bluish-black back, and white wing tips. It may be recognized when flying as far as one can see it, by the color of the outer half of its wings, which are white. It does not live so much in the woods as others of its race, but prefers the orchard or open grove.

Colaptes auratus. FLICKER. 412.

While the Flicker is a permanent resident, but few are to be found in winter. The pastures lying between Oyster river and Adams's Point are practically covered with juniper and barberry bushes, which retain their fruit indefinitely and furnish an abundance of food for certain birds, among which is the flicker, that otherwise must starve or migrate when winter comes. I seldom fail to find a Flicker or two on this tract, regardless of the time of year. I have recorded them on the following dates: November 20, January 22, February 14, March 6. I do not usually see more than one at a time in winter. An individual that took up his abode in Mr. Hoyt's pasture, back of Thompson hall, early in the spring of 1899, evidently became very lonely as the weather grew warmer. Day after day he called in vain. No answer came till the twentieth of April, when three others put in an appearance. After that I heard no more complaint. Apparently the one had stayed here through the winter, while the three were migrants. The majority go southward during the first half of October, straggling along without any concerted movement. By the first of May the northward wave of migration has passed. The habits of the Flicker are considerably different from those of our other woodpeckers. Most of its food comes from the earth. In summer ants are consumed in great quantities. I have opened many stomachs that were crowded with ants. As small fruits ripen, they are levied upon. Cherries and the fruit of the sour gum are particular favorites. In fierce winter weather Flickers frequently cling to the lee side of a good sized tree for shelter from high winds. Its nest is usually drilled out of a dead tree, and it may be easily found while the work is going on, by listening for the subdued sound of pecking inside the tree.

ORDER MACROCHIRES.

FAMILY CAPRIMULGIDÆ.

Antrostomus vociferus. WHIP-POOR-WILL. 417.

Whip-poor-wills come from the south about the middle of May and remain until late in September. The earliest date of their appearance recorded in my notes is May 13, when I saw both male and female. The latest date that I have observed one in the fall is September 26. I have heard the well known call "Whip-poor-will" as late as September 16. Their food consists of flying insects which are taken on the wing. The Whip-poor-will is strictly nocturnal. It does most of its hunting along water courses and in woods, so that it is not often seen, although its song is familiar to everybody. It passes the day on or near the ground in low tangled woods, in the neighborhood of water. It does not fly till almost underfoot, but when flushed moves well out of sight before alighting. Mr. Shaw tells me that he has found several nests at Hampton, among rank ferns in mixed woods, but they sometimes deposit their eggs where there is no particular shelter, except trees, above them. The only attempt at a nest is a mere hollow, without lining. It is to be distinguished from the Nighthawk as far as it can be seen flying by the absence of a white spot on each wing; in hand its immense rictal bristles are diagnostic.

Chordeiles virginianus. NIGHTHAWK. 420.

Nighthawks are crepuscular, rather than nocturnal, and frequent fields and pastures, rather than woodland, and roost on trees and fences in exposed places, so they are far better known than their more secretive relatives, the Whip-poor-wills. During the last week in August hundreds of them may be seen in loose flocks flying rather high toward the south, and by September 1 the last one is usually gone. Though they go considerably earlier than Whip-poor-wills they are sometimes first to appear in spring. May 9 is my earliest record. They feed exclusively on insects, which they capture on the wing. Their eggs are laid on bare earth or rock in open pasture or field without the semblance of a nest. When at rest on a rail or branch of a tree they always sit lengthways, instead of crossways, as other birds do. This habit may have come about when their feet, through disuse, grew too small and weak to hold them crossways a branch; but probability lies with the supposition that, being day-sleepers, their only hope of continuation lay in protective resemblance; and as a result, we find them as gray as a lichen-covered log or stone, and accustomed to lie lengthways of whatever they rest upon, to appear the more like a part of the object that supports them.

FAMILY MICROPODIDÆ.

Chætura pelagica. CHIMNEY SWIFT. 423.

The annual residence of the Chimney Swift in this latitude lasts from about the first of May until the second week of September. The dates of its appearance for the last three years, 1898, 1899, 1900, were May 5, April 27, and April 30, respectively. The dates of its disappearance for the same years were October 1, September 4, and September 12. The October record, which is an exceptionally late one, was made by a flock of about forty, which came to town on the date mentioned. They spent the afternoon hunting flies at the mill-pond, and during the afterglow following sunset came to the village where I saw them circling about the house-tops, with the evident intention of going to bed. As dusk deepened they began to centralize their movements around the large old-fashioned chimney in the house of Mr. Charles Hoyt. Time and again they wheeled around it, and made feints at descending until, finally, one of the leaders raised his wings like a letter V and dropped into the flue, followed by twenty-five of his comrades. They went down in rapid succession about eighteen inches apart, with as much precision as a body of trained soldiers. When, at last, one lacked the courage or dexterity to follow its leaders, and shot down to one side, all the rest followed, and then the circling process was repeated. Every time round they made a pass at the chimney. When the next descent was begun it continued till only four remained outside. These were evidently timid, for it was five minutes, by my watch, before the last one dropped out of sight. They left early the next morning and I saw no more swifts till the twenty-seventh of the following April. On that day I saw a pair flying about the village in the afternoon. When night came I posted myself where I could keep watch of Mr. Hoyt's chimney to see if it were a regular lodging place for transient swifts. I did not look in vain, for at the proper time they came and went in. I have seen other migrants since then visit the same chimney, and have come to regard it as a sort of Swift hotel.

Chimney Swifts live on flying insects, the different species of Diptera constituting a large part of their bill of fare. They fly high or low according to the location of their prey, and "bug hunters" do well to look at swifts before going out with a net to catch flies. They are always ready to take advantage of opportunity and congregate very quickly wherever food is plentiful. I have repeatedly seen dozens of them accompanying a mowing-machine, feasting on the jassids driven up as the grass fell. An unvarying plan of taking food on the wing has given the swift tireless powers of flight, and at the same time allowed its feet and legs to weaken by disuse into mere hooks, incapable of holding the bird on a roost, only sufficient to support its weight when assisted by the stiff tail against a rough vertical surface. Few birds are abroad so many hours of the day as swifts. When the young are in the nest, their parents are on the wing from daybreak till long after nightfall, and it is not unusual to hear the roar of a swift coming down chimney hours after other birds are asleep. The young apparently come from the nest able to care for themselves, for, though I can always make them out by their feeble flight, I have never seen one swift attempt to feed another away from the nest.

The nest is made of small sticks, which are grasped in the bill and snapped from dead branches of trees as the swift flies through. These sticks are cemented to the wall and to one another by a sort of glue, secreted by two large glands—one each side of the base of the tongue.

Family TROCHILIDÆ.

Trochilus colubris. Ruby-throated Hummingbird. 428.

The Hummingbird, so well known by every one, and so neighborly with those who cultivate flowers, is a hardier creature than many birds of larger size. I have seen it here as early as the thirteenth of May when but few flowers are to be seen and many warblers are yet to come, and as late as September 25. If it depended on nectar alone for subsistence it could not remain here so long by two or three weeks, but stomach examinations plainly show that insects form a large part of its diet, and thus we can account for its long stay in the northland. A single stomach which I have examined contained fragments of insects, and some pollen grains. Whether the pollen was taken voluntarily, or whether it came along with sundry hairy tibæ which were present, I could only guess. After the beginning of September I have frequently observed them about the mill-pond, where there were no flowers, flying near the shore, and now and then alighting. It is quite possible they were there for the purpose of catching insects, though I cannot so state. The nest is made late in June or early in July in a bush or tree. It is composed of felted cottony materials and covered with gray lichens, such as grow on the trunks of trees. I have found them nesting in beech, hemlock and apple trees. Although the Hummingbirds are flying most of the time, yet their legs and feet are sufficiently strong to hold them on a branch or telephone wire. Wires are as much to their liking as they are to swallows, and so far as my observations go are their commonest perch. The sexes may be easily distinguished at a distance. Only the male has the ruby throat, and only the female has white marks on its tail.

ORDER PASSERES.

FAMILY TYRANNIDÆ.

Tyrannus tyrannus. KINGBIRD. 444.

Kingbirds are very generally distributed over all sorts of country that is not wooded. They usually come north in pairs, and go south in small flocks of one or two families. My records of their arrival for the past three years are: May 13, May 6, and May 9, respectively. In 1898 and 1900 I saw the last one on the same date — September 11. They depend almost wholly on flying insects for their food. The only stomach I have examined was from a bird taken in August. It was filled with large winged ants. The audacious courage of the Kingbird is well known. It fearlessly attacks anything in feathers, and on one occasion I even saw a mother bird pounce down upon the back of a cat that was running off with one of her young. The value of this bird as a protector against the depredations of hawks and crows in orchard and farmyard is generally acknowledged. They invariably detect such intruders at a distance, and sally out to meet them with an attack so vigorous and persistent that the enemy is glad to retreat. The nervous irritability, characteristic of all our flycatchers, is most highly developed in this species. At times it is so pent up that the bird becomes a veritable fury, and dashes upward toward the clouds, crying fiercely, and ever and anon reaching a frenzied climax, when its cry is prolonged into a kind of shriek, and its flight a zigzag of blind rage. These exhibitions are frequently given in the teeth of the premonitory gust before a thunder storm, as if in defiance of the very elements. Like other birds which are usually unmolested by man, the Kingbird takes no pains to conceal its nest, which is very often placed in an apple tree in a field or pasture, or in an alder or other small tree near water.

Tyrannus verticalis. ARKANSAS KINGBIRD. 447.

In New England Bird Life, Stearns, p. 13, we are told that Mr. George E. Brown took a specimen of this kingbird at Eliot, Me. It is an accidental wanderer from beyond the Mississippi.

Myiarchus crinitus. CRESTED FLYCATCHER. 452.

This large, handsome flycatcher is rather uncommon, but yet a regular spring and fall visitor. I have not found it here in Durham after the first of June, though undoubtedly it breeds not far away, as it is common, locally, elsewhere in the state. Like the Kingbird they are usually seen in pairs. I have found a pair every spring near the oak woods on the Madbury road, about a mile and a half from this village, on the twenty-third of May. They remain in the vicinity for about a week, and then disappear. They go south in the latter part of August so quietly that they are far less often observed than in spring. My only fall record is August 23.

They nest in hollow trees, sometimes in orchards, but more often in the woods. I have found them the most difficult of the flycatchers to approach.

Sayornis phœbe. PEWEE OF PHŒBE. 456.

My earliest record of a Pewee's arrival is April 1. They are generally common by the tenth, and select a locality for their nest, though not the exact site, at once. Most of them are gone by the first of October, a few stay through the first week, and I have observed one as late as the seventeenth of that month. In mild seasons the first comers are males, the females following a few days later. But when the migration is belated by a backward spring, the sexes generally come simultaneously. I never saw any signs of courtship between them. The male, when he arrives first, selects his home and awaits the coming of a mate (whether they mate here or elsewhere, I do not know), and when she appears there are sure signs of joy. It has always seemed to me that the greetings are those of old associates rather than those of new acquaintances, and for that reason I hold the opinion that they are mated on arrival. I well remember the meeting of a pair and the subsequent proceedings. The male had been on hand for more than a week, sitting on the posts of the barnyard fence, flirting his tail, and singing cheerfully,—and, by the way, I know of no more cheerful sound on an April morning than the buoyant tones of a Pewee. It was about nine o'clock one sunny morning when his expected mate arrived. The greetings were scarcely over before the male, by short flights and coaxing tones, began to approach the place he had chosen for a nest. It was in the barn cellar on a bit of shingle projecting out from the top of a post. He led her without difficulty to a place on the fence nearest the barn, but it required a good deal of persuasion before she would fly underneath. Time and again he left his place beside her on the fence, and, hovering for a moment, as if hoping to be followed, went in to the chosen spot alone. Finally, after much coaxing, her timidity was so far overcome that she followed, and, poising before the shingle, looked over the place, but returned to the fence without alighting. The ice was broken, however, and she quickly returned, this time to set foot on the shingle, and thereby express her satisfaction with the location. Frequently afterward, I found them together on the shingle, though it was several days before the nest was begun. Pewees, swallows, and swifts are especially interesting, because they have chosen to forsake their primitive haunts and come to dwell with man. Formerly, Pewees lived in the vicinity of water, and nested on shelves of rocks, banks of earth, or among the roots of upturned trees. Now, since the land has become cleared, and flying insects are abundant everywhere, they are no longer obliged to live by water-courses, and while many still do so, yet many others live in field and farmyard. Very few indeed nest in the old places. Bridges and culverts are now resorted to by those which follow the water, while open sheds, barn cellars, and abandoned houses are utilized by very many. They have the nervous make-up peculiar to their tribe, evidenced by an incessant jerking of the tail. Although they do not essay to attack hawks, they keep a sharp eye out, and give instant warning when such an enemy comes in sight.

Contopus borealis. OLIVE-SIDED FLYCATCHER. 459.

The Olive-sided Flycatcher is only a migrant here, though it breeds in the more heavily timbered portions of the state. During the latter half of May and the first half of September it may occasionally be seen, generally on dead tops or branches of trees in unfrequented places.

Contopus virens. WOOD PEWEE. 461.

Wood Pewees are abundant summer residents in orchards and woods. They come late in May—two of my records say the twentieth and twenty-fourth—and leave in September. My latest record is September 15, when I saw three perched together in the dead top of a tree apparently contented, and it may have been several days later before they finally left. They usually spend the early part of the summer in the woods. After the young are on the wing, they come to the orchards and shade trees, and during August are sometimes one of the commonest birds along our streets. The nest is a low, lichen-covered structure, which looks so much like a natural growth on the branch supporting it, that it is difficult to find when the old bird is not at hand.

Empidonax flaviventris. YELLOW-BELLIED FLYCATCHER. 463.

This species is only a spring and fall migrant, and uncommon at that. Even diligent search will hardly reveal one a year. I have seen but two here in four years—once on the twenty-first of May, and once on the thirtieth of September, which dates may be accepted as a good time to look for it. I have always found it in the neighborhood of running water, in low trees. It is not a very shy bird, and will usually let an observer approach near enough to recognize it by its yellowish eye-ring and breast.

Empidonax traillii alnorum. ALDER FLYCATCHER. 466a.

If a person is familiar with the notes and habits of the Alder Flycatcher, he will have little difficulty in finding it; otherwise, it is easily overlooked. It is a summer resident, living exclusively near water—in the alder runs which mark the course of brooks, or in swamps. Its manners are distinctively those of a flycatcher, but its notes are quite unlike the well known calls of the Chebec and Wood Pewee, the only two summer flycatchers which resemble it in the least. Its nest is a thick, deeply cupped affair placed in an upright crotch of a small tree.

Empidonax minimus. LEAST FLYCATCHER. 467.

This common orchard denizen comes on or about the seventh of May very regularly. The migration takes place practically *en masse* as not more than one or two days elapse after the first arrival before they are abundant. The departure takes place in August, my latest date being the thirty-first of that month. Though this flycatcher is small and dull-colored, it is as prominent in May as any bird in the orchard. It is a veritable jumping-jack, jerking its head backward every time it says "chebec," its wings quivering, and its tail in incessant motion. The white ring around the eye serves to distinguish it from other small flycatchers. Its nest is a well-made structure of soft felted material, oftener in an apple tree than elsewhere.

FAMILY ALAUDIDÆ.

Otocoris alpestris. HORNED LARK. 474.

The Horned or Shore Lark is a common migrant on the marshes of Great Bay and along the coast. They are here by the last of October, through November and more or less in December. Their spring visit occurs in March and April. Though seeds form the greater part of their food, they eat such insects as they are able to find. Out of two December stomachs, I have taken no less than a dozen flies of different kinds. Horned Larks are often associated with Snowflakes when both are engaged in the common pursuit of gathering seeds. They sometimes follow the retreating tide on the shore, pecking busily among the stones, but more often they are found on the ungrassed portions of marshes in scattered flocks. They are easily identified as there is no other species of similar size and habits, except Snowflakes, here in cold weather.

FAMILY CORVIDÆ.

Cyanocitta cristata. BLUE JAY. 477.

The Blue Jay is a common permanent resident, most in evidence when nuts and corn are ripe. Ten months of the year he is a sneak, living slyly in thick woods, getting a livelihood by fair means or foul, always acting like one in debt. September and October bring the mast harvest, and the wily jay employs himself in the honest labor of collecting nuts. He is no longer a coward, but goes boldly about his business, making the woods ring with his calls—a different bird altogether. By November the nuts are fallen and buried by leaves. Cold winds drive him to his old haunts in the pines, and again he drops into his secretive ways,—a veritable fox in feathers. His nest is a frail affair of twigs in a small pine or hemlock in a dense thicket. This Jay is an expert vocalist. There seems to be no limit to the variety of sounds he can make, and in captivity he is readily taught to imitate a considerable variety of sounds.

Perisoreus canadensis. CANADA JAY. 484.

The Canada Jay is quite out of order down here so far from his normal habitat. Nevertheless, Mr. Shaw of Hampton states that two were killed at Boar's Head some years ago. It is only a casual visitant at best, one of the rare possibilities of autumn, when birds are more given to roaming than at any other time of year.

Corvus corax principalis. NORTHERN RAVEN. 486a.

Ravens seldom visit this locality, and indeed, their occurrence anywhere in the state is at present exceptional. I have found none in the collections that I have visited, but Mr. George Wentworth of Rollinsford tells me that he once saw one at Wells Beach. Its large size and hoarse voice readily distinguish it from a crow.

Corvus americanus. AMERICAN CROW. 488.

Crows live in this corner of the state the year round. They breed here in abundance, make this a rendezvous during the migration seasons, and a small flock, ranging from six to twelve, remain in this immediate neighborhood every winter. They always find food along the salt rivers at low tide, even when other sources fail, and it is the usual sight to see them flying toward the river early in the morning, and seeking the pines again at night during the fall and winter. The great wave of migration passes southward about November 1, and northward late in March. Crows are eminently social, and are models of propriety in their intercourse with one another. I do not remember ever to have seen two crows fighting, but though harmony is their rule, there are exceptions to it, as the following incident related by Mr. Albert Demeritt shows: One spring morning Mr. Demeritt was walking on his farm and saw two crows in combat in a field. He approached and found them locked in an embrace that was anything but fond. Each had a claw in the other's eye, and was holding his grip with true bull-dog tenacity. Hatred had banished fear, and they were picked up, carried to the house and exhibited to the members of the family before they released their holds. Crows have a regular roosting place to which they repair every night. There was a roost early last fall in the dense growth of small white oaks on the left bank of Oyster river near its mouth. Later, they came nearer the village to some pines near the Burnham farm on the road to Durham Point. They were in the habit of roosting close together, and some nights I found nearly the whole flock, about thirty, in the same tree. A crow that had been "winged" fell into my hands in April, 1898, and I kept him a few days with the intention of getting some idea of his food capacity. He was confined in a small box, 13x20 inches. Besides a supply of corn and oats, which I kept before him all the time, I furnished him as many earthworms—twenty to sixty per day—as I could conveniently procure. After five days I varied his fare with the small minnows (*Fundulus*) so abundant in the creeks. He evidently had a taste for fish, for he devoured them greedily. When he had been mine a week I began a three days' experiment. During this week he had become quite tame, and frequently ate in my presence. For the two days preceding the experiment his food was largely fish, which was the only kind of suitable food that I could find in sufficient quantity. I laid in a stock of 412 grams of minnows, which I kept alive and allowed Corvus to catch for himself from a basin of water. At night of the third day the last fish was gone, making the daily average 137 1-3 grams. That is to say, a wild crow with a broken wing, kept in close confinement, supplied with what food he cared to eat every day for a week, consumed approximately one fifth of his own weight, during each of the three days succeeding. I also learned, during this experiment, that crows regurgitate whole corn and indigestible parts of insects, the time of regurgitation being from one to three hours after eating.

FAMILY ICTERIDÆ.

Dolichonyx oryzivorus. BOBOLINK. 494.

Male Bobolinks put in an appearance early in May—May 1 is its earliest date on my note book—but it is usually ten or twelve days before the females are seen. The habits of the sexes are quite different in spring. The male is full of song, and is continually displaying both his vocal powers and his good looks; while the female is as modest in deportment as she is in dress. She keeps so closely in the grass that, were it not for the aggressive attentions of Lord Robert, who pursues her with a determination that actually suggests violence, she would escape notice altogether. It is plain that Bobolinks do not mate till after they arrive in the north. Among all our birds the Bobolink easily takes the lead as an ardent lover, and be it said to his credit, his assiduity does not wane with the assumption of family cares. He provides food for his children, and shows the greatest solicitation when he thinks his home is in danger. The nest is a humble affair of grass stems in a little hollow. It is usually in a field and rarely or never near a bush or rank weed, such as many birds desire for a shelter. The parents show the utmost caution in going to and from the nest, always alighting at some distance from it and going in on foot. The young are usually able to leave the nest by the time for haying, so that few are injured in that way. When the grass is cut they retire to corn and grain fields, where they keep in seclusion till the moulting period is passed, after which the migration begins. It is not later than the middle of August when the first flocks leave, and I have heard stragglers overhead as late as the twenty-third of September.

Molothrus ater. COWBIRD. 495.

The Cowbird comes in March, generally in company with Redwings, demonstrating the old proverb about "Birds of a feather." This bird is notorious for two things, namely, for its fondness for bovine society, whence its name, and for its habit of depositing its eggs in the nests of other birds, the young to be hatched and fed by the victims of such imposition, to the neglect of their own progeny. They are not so common here in the vicinity of the college in summer as in some other localities. I have found one Cowbird's egg in the nest of a Yellow Warbler, near Thompson hall, the first of June. During the latter part of August, they assemble in flocks and repair to localities furnishing an abundance of seeds, upon which they mainly subsist after summer time. It is October before the last of them go south.

Agelaius phœniceus. RED-WINGED BLACKBIRD. 498.

The Red-winged Blackbird is one of the "harbingers of spring," coming early in March, if the weather is favorable, usually but a day or two behind the foremost Robins. The males appear first, the females coming from two to three weeks later. For instance, I saw in 1889 males on the fifth of April, but I saw none of the other sex till the thirtieth of that month. The males pass the time intervening between their arrival and the coming of their mates, foraging in the fields. At that early season the marshes and swamps, their summer haunts, are not free from ice, and the females linger in the southland till their northern home is habitable, so that we rarely see them in the fields in spring as we do the males. The date of appearance mentioned above is a very late one, owing to the ice storm which kept all birds away that year till the first of April. The preceding year the males came March 9. The nest is a coarsely built structure near the ground among flags or in a small bush, frequently surrounded by water. After the young are hatched, their parents are often seen in the newly mown fields catching grasshoppers. As soon as the young are strong, that is, by the middle of August, they begin their peregrinations, which end in their final southward movement. Where the hundreds and thousands that breed in this state and northward stay from the time they leave their nesting grounds till they finally go south I am not informed, but from the time of their disappearance in August till late in September one is rarely seen. I have observed flocks on the final migration at different times between September 27 and November 11. In 1899 a flock of several hundred, including Red-wings, Cowbirds and Bronzed Grackles dined in Mr. George Hoyt's cornfield on the twenty-fifth of October. The only breeding place that I know of in this immediate vicinity is in the swamp lying west of the Newmarket road about two miles from here.

Sturnella magna. Meadow Lark. 501.

Larks are hardy birds, wintering regularly as far north as Cape Cod, and appearing here in March. They are very locally distributed, and nowhere abundant. In four years I have seen but one on the college farm, but in Madbury I have observed them several times in the fields near the railroad station, and I have been told that they breed regularly in Lee. They are birds of the field subsisting in summer principally on insects, and turning more and more to seeds as the season advances. The nest is placed on the ground, without any regard to weed or bush for shelter. Larks have an unfortunate habit of nesting late, which probably accounts in a measure for their scarcity, as I have repeatedly known nests to be demolished by a mowing-machine early in July.

cterus spurius. Orchard Oriole. 506.

Mr. Geoge H. Yeaton of Rollinsford has an adult male of this species in his collection, which he killed in his orchard some years since. This is the only specimen of the Orchard Oriole that I have known to be seen here. Its normal range does not extend further north than Massachusetts, where it is only locally found.

Icterus galbula. Baltimore Oriole. 507.

The Baltimore Oriole or Golden Robin as it is popularly called is one of the few birds that most people know, being brought into prominence by its color, its song, and its pendent nest, so often attached to the swaying branches of our village elms, and reminding us of its charming personality through the long months of its absence. Male Orioles which usually precede the females by a few days, have sometimes come as early as the sixth of May. I have never seen one later than the sixth of September. The majority are gone before the end of August. They feed on such insects as they find in trees—ants, beetles, bugs, etc.—and on small fruits, such as blueberries and black cherries. Occasionally they invade the garden, and commit depredations there. I once opened an August stomach that was filled with green peas. The nest is usually placed so as to be more or less concealed from prying eyes beneath. The young are flying early in July, and in the course of a week or so betake themselves to pastures where berries and insects are plentiful. There the young grow strong, and all acquire a new dress. After moulting, adults frequently return to the elms and orchards, but as a rule the young ones prefer seclusion, and are more often found in out-of-the-way places up to the end of their stay.

Scolecophagus carolinus. RUSTY BLACKBIRD. 509.

The Rusty Blackbird is an abundant and regular migrant. The following extreme dates from my records give an idea of its movements in this locality. Spring, first seen, March 13; last seen, May 2. Fall, first seen, September 29; last seen, October 16. The spring passage often lags, and it is not uncommon for a flock to remain in one locality a week or two, but in autumn they show less inclination to linger.

Quiscalus quiscula æneus. BRONZED GRACKLE. 511b.

Although this blackbird is locally common in this state, this does not happen to be one of the localities in which it breeds. I have seen it here at Durham only when migrating. It is often found in company with other blackbirds, but always in less numbers than either of the other three species. The earliest date that I have observed it is March 12, and the latest October 26, although Mr. Shaw reports an exceptional case where one stayed about the cornfields of Hampton till the middle of January, in spite of the fact that there was more or less snow on the ground for some time before his departure. This species is as omnivorous as the Crow, devouring insects, seeds, grain, or table refuse, with equal avidity. This grackle cultivates the society of man, frequently building its nest in villages when there are evergreen trees suitable for that purpose.

FAMILY FRINGILLIDÆ.

Coccothraustes vespertinus. EVENING GROSBEAK. 514.

The college collection contains a pair of Evening Grosbeaks secured from a flock of sixteen, by Mr. Shute at Newmarket, in 1890. The ordinary range of this species lies west of the Mississippi, and its occurrence here is wholly exceptional.

Pinicola enucleator. PINE GROSBEAK, 515.

The Pine Grosbeak is a regular winter visitant, but its numbers vary greatly from year to year. Some seasons they are abundant from November until April, and again, not more than two or three can be found in a whole winter. While here they feed on seeds of such trees as the white ash and basswood, on buds of various trees and on apples. The proportion of adult males, known by their red color, is small, the great majority being females or young males. They are gentle, unsuspecting birds, and readily come to the orchard and ornamental trees and even closely about the house.

Carpodacus purpureus. PURPLE FINCH. 517.

This finch is a common summer resident that now and then remains all winter, but generally leaves late in October and returns early in April. The only noteworthy record that I have is of a pair which I observed here the fourteenth of February, 1898. They were evidently a couple of wanderers, for certainly no regular migration takes place here in February. The Purple Finch is an eminent vocalist; its morning song, which usually is delivered from the top of some tall elm, being one of the best I hear.

Passer domesticus. ENGLISH SPARROW.

English Sparrows are pretty thoroughly disseminated throughout the state. I find them wherever there is even the suggestion of a village, and a public horse-shed without a flock of them is a curiosity. This village supports two clans of them—one, homing at the lower end, near the old sawmill, and the other in the vicinity of the college. This latter flock has roosted in the clump of pines in the corner of President Murkland's yard for a number of years. It is interesting to watch them retire. Naturally fussy, they are doubly so at bedtime, and it is only after much scolding that they finally settle down for the night. Although most of their food is taken from the street, they are glad to avail themselves of various seeds, when they are to be had without much hunting. I have known them to feed on ragweed seed in company with Redpolls all winter, making it their chief diet. In summer they eat insects to a limited extent. When spring advances the flocks are more or less broken and scattered for the purpose of breeding. Here at Durham they are forced to look out for their own nesting places, as there are not more than two or three bird houses in town. Such as are able select hollow trees, while others construct bulky nests of straw in trees. Last spring I found two pairs located in hollow trees on the college grounds. A pair of Bluebirds contested for one of the holes, but they were unsuccessful. Whenever the Bluebirds came a Sparrow got inside and held the fort till the invaders were repulsed. The usurpation of the customary nesting sites of respectable native birds is the greatest crime that this miserable little Briton is guilty of.

Loxia cuvirostra minor. AMERICAN CROSSBILL. 521.

This Crossbill while not nearly so rare as the next cannot be depended upon to appear at any particular time. During the past year I have recorded their presence on the following dates: April 23, May 6, August 6, September 24 and November 30. Previous to the first of these dates, I had not observed a single one in three years. They were abundant in the fall of 1899 up to December, when the majority at least went away. I have found them feeding on the seeds of elm, apple, pine, spruce, and hemlock trees. I have known them to live on the seeds of apples taken from a pile of pomace, several weeks in spring. When elm seeds are fallen, they go to the ground, where they appear almost as much at home as sparrows, though ordinarily we find them only in trees. The call note of this Crossbill, which is uttered freely as it flies, is *chip*, *chip-chip*, *chip-chip-chip*, in a voice quite like a young chicken's.

Loxia leucoptera. WHITEWINGED CROSSBILL. 522.

This species has a more northern habitat than its near relative, the Red or American Crossbill, and seldom comes to this corner of the state. In the winter of 1899-1900, they came in great numbers, and were abundant from early in December till March, the last one to be recorded in my notes appearing on the fifth of the latter month. It may be readily recognized after a person has become familiar with its notes, which are quite unlike those of the Red Crossbill, being more like those of the Siskin. Indeed its most common cry, "*che-che, che-che*," cannot be distinguished from the similar call of the Siskin, but the Whitewinged Crossbill says "*peep*," now and then, when the Siskin would say "*dear*." During the earlier part of their stay, they feed chiefly on hemlock seeds; later, when hemlock seeds are mostly blown away, they feed on the seeds of the yellow birch.

Acanthis hornemannii exilipes. HOARY REDPOLL. 527.

The Hoary Redpoll is a rare winter visitor from the arctic region. One in Mr. Shaw's collection is the only example of this species that I have found. It is similar to the common Redpoll in size, but very much paler in color.

Acanthis linaria. REDPOLL. 528.

Redpolls are of very irregular occurrence as winter visitants. As a rule, if any come they are abundant, but they do not average to appear oftener than once in three or four years. They usually begin to come in November and remain till late in March. In January, 1899, a flock of about two hundred took possession of one of the college fields, and for two months they were there daily, feeding on ragweed seed. They began to diminish in numbers about the middle of March and I saw none after the twenty-third of that month. The seeds of the different varieties of birch are largely eaten by Redpolls, and, when the ground is covered with snow, are their main dependence. I have never seen a Redpoll getting seeds from any of our coniferous trees.

Astragalinus tristis. AMERICAN GOLDFINCH. 529.

The Goldfinch, Yellow Bird, or Thistle Bird is a common permanent resident. It is eminently gregarious at all seasons, though in mid-summer when breeding is going on, the flocks are small. It is a bird of the field, pasture, and highway, only going to the woods when driven by hunger, to procure seeds from trees. In summer the males are conspicuous objects where thistles and dandelions are sending forth their plumed seeds. The nest is a neat and compact structure usually built in a maple, and as a rule, near a dwelling. Family cares are delayed till late in the season, July or even August, and I have known young to be in the nest the second week in September. The winter dress is assumed by the first of October and then flocks begin to increase in size. Each flock finds a satisfactory feeding-ground, where ragweed or some other herb with persistent seed abounds, and so long as the food supply holds out, remains pretty closely in its neighborhood. So long as the ground is bare their dark winter suits render them, while gleaning, very difficult to see. The summer dress is not complete till late in May.

Spinus pinus. PINE SISKIN. 533.

The Siskin is another visitant that only appears at irregular, and generally long intervals. It is usually a winter bird, coming in October, and going in April, but I have known it to spend the summer in central New Hampshire, and suspect it visits Durham now and then at all seasons. During the fall of 1899, it was an abundant species here. It is fond of coniferous trees, the seeds of which furnish most of its food till they fall in autumn or early winter, when birches become its purveyors. Its general habits remind one of the Crossbills.

Passerina nivalis. SNOWFLAKE. 534.

Snow Buntings usually appear on the sand-hills near the ocean toward the end of October and remain till the following April. They frequently make more or less extended excursions inland, but rarely remain in any given locality more that a few hours. The southward flight reaches its maximum in November and the majority go north early in March. While here they feed on seeds of various herbs. December stomachs which I have opened contained only seeds and sand. Their wings are larger than the wings of most finches, and they fly swiftly and easily. The sight presented by a hundred snowflakes as they pass over a level stretch of land, alternately running and flying, is beautiful indeed.

Calcarius lapponicus. LAPLAND LONGSPUR. 536.

The only time in this vicinity that I have observed this species was on the thirtieth of November, 1899, when I saw three at Hampton Beach. With them were Shore Larks and Snowflakes. Of the three species the Longspurs were hardest to approach. They fed largely on the seeds of beach grass, and also when the tide was out, on the shore, though what they found there I did not ascertain. A November stomach taken at Hampton, which I opened, contained seeds. At Plymouth, Mass., in January, 1900, I found them associated with Snowflakes in about the ratio of one Longspur to a hundred Snowflakes. The two fed and flew together. I did not see any Longspurs till after two days of severe weather, when they came with a delegation of Buntings and joined the flock of Buntings that had been staying there.

Poœcetes gramineus. VESPER SPARROW. 540.

The Vesper Sparrow is a common summer resident in fields and smooth pastures. Its spring coming depends much upon the weather, as is the case with other early migrants. In 1898 the first record was made March 31; the next year none appeared till April 13; while in 1900 it was the fifteenth of April when I first observed one. It is essentially a ground-bird, nesting and feeding on the ground. Its nest is composed of grass, and placed in a slight hollow. This sparrow is readily distiguished from all our other summer sparrows by the outer tail feathers which show white as it flies, not unlike those of the Junco. Few Vesper Sparrows remain later than October, but I have seen one contentedly hulling ragweed seed on a crust of snow, so late as the fourteenth of November.

Ammodramus princeps. IPSWICH SPARROW. 541.

This sparrow, which looks like a faded, overgrown Savanna, is a regular migrant along the coast. They come to the sand-hills in the latter part of October and the last are usually gone southward early in December. I have found them common in Plymouth, Mass., in

January, where they were evidently wintering. They pass northward in March and April. I have never seen them take other food than the seeds of the coarse grass which grows on the sand-hills.

Ammodramus sandwichensis savanna. SAVANNA SPARROW. 542a.

In this region I usually find Savanna Sparrows spending the spring and summer on the brackish marshes adjacent to the Piscataqua and its tributaries and also on the sand-hills by the sea. While migrating they frequent fields where ragweed abounds. I have heard them singing their unmusical notes in the Oyster river thatch beds on the eighteenth of April, and have found them plentiful in fields on the twenty-seventh of October. In its ways and general appearance the Savanna resembles the Vesper Sparrow. Both are skulkers, preferring to run out of sight, instead of flying, unless they are approached too closely. The Savanna, however, has no white feathers in its tail, and the yellow line running from its bill back over each eye, when coupled with the distinctly spotted breast, enables a person to identify it after a little patient scrutiny.

Ammodramus savannarum passerinus. GRASSHOPPER SPARROW. 546.

The Yellow-winged or Grasshopper Sparrow is very locally distributed, and nowhere common. It is not a "brush" sparrow, preferring on the contrary open fields or pastures, where there is now and then an evening primrose or mullein stalk for it to perch on and deliver its stridulent apology for a song, which has earned for it the name Grasshopper Sparrow. The only trace of this sparrow that I have found here is a mounted specimen in the collection of Mr. George H. Yeaton of Rollinsford, who occasionally finds it near his home.

Ammodramus caudacutus. SHARP-TAILED SPARROW. 549.

Sharp-tailed Sparrows are common on the tide-water marshes. I have found them abundant at Hampton during the summer, and as late as the fourteenth of October. They are rather difficult birds to study alive, for the reason that they secrete themselves in the tall grass when approached, and lie very low till everything is quiet.

Zonotrichia leucophrys. WHITE-CROWNED SPARROW. 554.

This plainly dressed, yet handsome sparrow is one of our less common species, but it is not so rare as many suppose, for the reason that it loves the seclusion of shrubbery and thus frequently escapes notice.

It is a migrant here, coming from the south the first week in May, and leaving for the north the last week of the same month. In autumn I have not recorded their presence earlier than the twenty-ninth of September, nor later than the tenth of October. Young fall birds do not have the black and white crown of adults, but instead, the entire crown is reddish brown with just a suggestion of a light stripe along the median line. The song of this sparrow is rarely heard here. In the spring of 1900, in common with other birds, they remained in unusual numbers for nearly two weeks. From the thirteenth to the twentieth of May they were actually numerous, and I heard them sing repeatedly. The song began with a whistle as pure in tone as the notes of the White-throated Sparrow, and ended with a vocal diminuendo quite similar to the corresponding portion of the Vesper Sparrow's song.

Zonotrichia albicollis. WHITE-THROATED SPARROW. 558.

White-throated Sparrows, like the last species, are only migrants here, although they breed at no great distance toward the more elevated portions of the state. I have noted them here from the twenty-third of April till the tenth of May, and from the twenty-third of September till the nineteenth of October. The White-throat's song is a clear, mellow whistle, very agreeable to hear, and it is a pity that he sings so little as he passes. In the examination of a stomach from a specimen taken early in May I was able to identify besides some grains of sand, a scarabæid beetle, and a polygonum seed, which had been inadvertently swallowed without being hulled. I have seen them partake of the berries of the black-berried elder (*Sambucus canadensis*) in October. I have noticed what I do not remember to have seen reported about this sparrow, namely, that when on hard, smooth ground it *walks* with almost the gravity of a blackbird, while gathering seeds from underfoot; but when in a hurry, or on grass land, it *hops*.

Spizella monticola. TREE SPARROW. 559.

Tree Sparrows come from the north every autumn between the twentieth and the thirtieth of October—one year their first appearance was on the twenty-second, and twice it has been on the twenty-ninth. The majority are gone southward by the middle of November, but there are always more or less of them to be found all winter. By the first week in April the northward movement is begun, and the last one disappears between the fifteenth and twentieth of that month. It is interesting to note that the fall appearance of this sparrow is almost precisely on the day that the last Chipping Sparrow leaves us; and also that its disappearance in spring agrees quite as closely with the Chippy's coming, as may be seen by comparing the migration data of the two species. This and the Junco are the only native sparrows found here in winter.

Spizella socialis. CHIPPING SPARROW. 560.

Chipping Sparrows begin to come singly, on their northward movement, these forerunners being followed in a few days by the main body. The earliest date of their appearance that stands on my record is April 15, and the latest April 23. In autumn they are gradually disappearing all through October, adult birds going first. In one instance I have seen two here as late as October 31, both young birds of the year. The next latest record that I have is of a single immature specimen, found with a flock of Tree Sparrows and Juncos feeding on gray birch seeds October 23. This sparrow has become attached to cultivated land, and places more confidence in mankind than any other bird in our avifauna. It nests in every orchard, and frequently builds in some convenient situation about the house, attending to its family cares quite unconcerned by the proximity of people.

Spizella pusilla. FIELD SPARROW. 563.

This common summer resident, notwithstanding its trivial name, belongs to pasture lands, where sweet ferns and similar shrubbery abound. It has a sweet plaintive whistle, consisting of three or four well sustained notes at about the same pitch, which finally run into a rising trill, diminishing into silence. The nest is made wholly of grass stems and placed indifferently in a bush or on the ground. They feed on the ground as a rule, though I have seen them eating gray birch seeds in September. The period of its residence here is the same as that of the Chipping Sparrow.

Junco hyemalis. SLATE-COLORED JUNCO. 567.

The Junco is best known as a spring and fall migrant, but a few always spend the winter here in suitable places. October 5 is the earliest fall record of its coming that I have made; this has twice been the date of its appearance. Few remain after the middle of November. The spring flight begins early in April and is nearly over by the twentieth of that month. In a single instance I have seen a female here as late as the first of May. They breed on mountains all over this state, and I should expect to find them in summer not farther away than the Blue Hills in Strafford. They are eminently social and may be found in flocks, even in the breeding season, on their chosen summits. I have seen three "sports" of this species, all similar, having heads and necks partly white.

Melospiza melodia. Song Sparrow. · 581.

The Song Sparrow is our most abundant summer resident. It comes early and goes late, keeping very close to the limits of winter. They are here in March as soon as there is a relaxation of cold weather, and sing fervently in spite of their dismal surroundings. I have known them to be here on the eleventh, and again they have not shown themselves till the twenty-fourth of that month, when the weather has been unfavorable. They follow the coast in their migrations, and are to be found near the ocean much longer than elsewhere in this latitude. Indeed, I should not be at all surprised to find them wintering in some sheltered run at Hampton. I have found them in winter at Plymouth, Mass., in considerable numbers. Their latest fall occurrence that I have noted here is November 30, which is more than a month after they cease to be common. Song Sparrows live on moist land, and a majority are found in close proximity to water. Every run, fresh or brackish, harbors them, and the same is true of swamps and meadows. Though they usually build their nests on the ground, when there is a wet season and the meadows they inhabit are inundated, instead of going to higher ground, they simply take to the bushes and build their nests there, high and dry. The name of this sparrow was advisedly chosen, for excepting the Fox Sparrow, whose voice is but rarely heard in this latitude, its song is unexcelled in the kingdom of New England sparrows, and no other prolongs its singing season to any such extent.

Melospiza lincolnii. Lincoln's Sparrow. 583.

Lincoln's is the rarest sparrow that regularly migrates through this territory. I have a single specimen, the only one I ever saw alive, which I found in a young growth of deciduous trees in Newmarket, near Great Bay, on the thirteenth of May. It was hopping about on the ground, and on first sight I took it to be a Song Sparrow—the two species look almost precisely alike on the back—but a view of its breast revealed its identity. Its breast has a tinge of buff, and is but lightly spotted, wholly lacking the heavy central blotch so conspicuous on the Song Sparrow. Mr. Shaw of Hampton has a specimen which he found feeding in his field.

Melospiza georgiana. SWAMP SPARROW. 584.

This species is often associated in its summer haunts with the Song Sparrow. Though common, it is not generally well known because it lives so exclusively in dense tangles of brush in swamps, and is so retiring in its disposition as to be difficult to become aquainted with. In the breeding season it is noisy but unmusical; at other times it is usually silent. It comes north a week or so later than the Song Sparrow, and goes south between the twentieth and the twenty-fifth of October.

Passerella iliaca. FOX SPARROW. 585.

Fox Sparrows are spring and fall visitants, abundant in their season, yet keeping so closely in woods and bushes as to pass unobserved by the majority of people. I have seen them here in numbers on the sixteenth of March, and have found them still common on the ninth of April. While it is difficult to state exactly just when such retiring birds come and go, one may always expect to find them during the last week in March and the first week in April. In the fall I have observed them on various dates between October 21 and November 13. They are not very particular as to what sort of woods they stay in, provided there be plenty of branches near the ground. In the spring of 1898, which opened early and gave us mild weather during the latter half of March, Fox Sparrows sang freely. This song is similar in character to that of the Vesper Sparrow, but is louder and clearer, being delivered with a force suggestive of a Purple Finch.

Pipilo erythrophthalmus. TOWHEE. 587.

The Towhee, or Chewink, as it is quite as often called, is an abundant summer resident. In looking over its record for the last three years I find that its spring coming has occurred with an unequaled regularity. Each year they came on the thirteenth of May. The majority leave about the first of October, but I have once recorded an adult male on October 15. Its entire stay is passed among bushes and briers. Its nest is built on the ground, usually in the shelter of a bush. The voice of the male is agreeable, though its notes are so abruptly delivered that they can hardly be called melodious. When singing, he is accustomed to resort to a somewhat elevated perch.

Like sparrows in general, Chewinks eat seeds, chiefly, though in summer when they are scarce and insects abundant, grasshoppers, beetles and other insects are eaten to a considerable extent. A single stomach from a young male taken August 10 contained principally blueberries, but there were also remains of a grasshopper, a beetle, and some kind of bee or wasp.

Habia ludoviciana. ROSE-BREASTED GROSBEAK. 595.

This worthy bird has a triple claim on the goodwill of mankind. It is handsome; it is a melodious singer; and it eats potato "bugs." Therefore, from both practical and æsthetic standpoints it deserves every kindness. Unfortunately its distribution is somewhat local, and it is nowhere abundant in our state. I have found no evidence of its breeding here in Durham, and have only seen an occasional male in May, though of course a pair are likely to locate in this vicinity any summer. I have found them rather common at Exeter, in the village elms and adjacent orchards. May 14 is the earliest date on which I have noted it, and I have yet to see one after the first of September, though they may remain later than that for aught I know.

Cyanospiza cyanea. INDIGO BUNTING. 598.

Indigo Birds appear quite regularly within a day or two of the middle of May, and throughout the summer are fairly common in suitable localities. The southward movement takes place about the middle of September, and I have not seen any after the twenty-sixth of that month. They feed on insects and seeds in proportion, varying with the time of year. One August stomach which I have opened contained remains of one beetle and many seeds. After the corn has become "tasseled" it affords a favorite refuge for Indigo Birds, and in August and September they are oftener found in cornfields than anywhere else. The sexes differ widely in habit; males sing in conspicuous places and never attempt to secrete themselves, while their sober-colored mates are always skulking about in the bushes. They build their nests in bushes not far from the ground. Mr. Shaw of Hampton states that he once saw a set of Indigo Bunting's eggs which were speckled, but that was an exceptional case, as they are ordinarily unmarked. The Indigo Bird enjoys hot weather. He does not sing early in the morning as most birds do, but waits till the sun is high, when, from the top of a tree where the full heat of noon beats down upon him, he repeats at short intervals his drowsy song.

FAMILY TANAGRIDÆ.

Piranga erythromelas. SCARLET TANAGER. 608.

Scarlet Tanagers are more common than is generally supposed by people unfamiliar with their notes and habits. They frequent deciduous woods as a rule, where, among the foliage, even the flaming red of the male ordinarily escapes notice. In the spring of 1900, which was late and cold, an unusual number of them were noted by all observers. At one time I saw no less than three males in the maples in front of Thompson hall. The prolonged cold prevented insects from coming out of hibernation at the usual time, and also delayed the hatching of their eggs, so that birds were reduced to sad straits for food. I even saw Tanagers hopping forlornly about the fields, searching for something to eat. Tanagers begin to arrive from the south the first week in May, and most of them are gone by the first of October. They moult twice a year like Bobolinks. In August the males begin to show green patches on their red coats, and before September is gone there is not a red feather to be seen. I have a male in my collection, taken here on the fifth of October, which has the black wings and tail of the nuptial dress but otherwise is entirely olive green. This Tanager's song in tone and syllables is like the Robin's, but it is far more hurriedly delivered. When a person has learned the Tanager's song and call note, *chip*, *churr*, he will have little trouble in finding him.

FAMILY HIRUDINIDÆ.

Progne subis. PURPLE MARTIN. 611.

Martins are strangely local, and while many villages and farms are favored by their presence, Durham is not. They have quite abandoned their early habitations in hollow trees, and now depend on artificial retreats for nesting sites. They have several virtues, according to human standards, among which are good looks, a propensity for catching winged insects, and an antipathy for hawks, exceeded only by Kingbirds. They also have many interesting ways, especially in their courteous intercourse with one another, that bird lovers find entertaining. It is not strange then that more houses are erected for their benefit than are occupied. They begin to appear about the twentieth of April, and by the end of that month are all back at the old stands. Although exceedingly particular in the selection of tenements, they often visit houses which they have no intention of occupying, to the anxiety of the existing tenants. Tree Swallows and Bluebirds are thus often called to resist them, but never for long at a time. I observed an extraordinary case of this sort last June in Northwood. As I was passing a house I noticed a commotion among some Martins and Cliff Swallows. On stopping to ascertain the cause I found that the swallows had built several nests on the moulding under the eaves, and that the Martins were uninvited guests. A Martin had taken possession of one nest, and with his head sticking out of the entrance was talking volubly in a manner that made me feel certain his remarks were not less insolent than his act.

Petrochelidon lunifrons. CLIFF SWALLOW. 612.

Owing to their extreme gregariousness Cliff Swallows are very unevenly distributed. One farmer's barn may have half a hundred nests ranged along beneath the eaves, while the barns of his neighbors are destitute of them. They begin to come from the south early in May—the fifth is the earliest I have noticed them—and are very soon engaged in repairing their curious mud nests. The majority leave early in August, and I have never seen one later than the twenty-second of that month. In their habits and looks they resemble Barn Swallows, though they lack the forked tail of that species, but are always readily identified by the brown spot on the rump.

Chelidon erythrogastra. BARN SWALLOW. 613.

Barn Swallows are more abundant than any other species of their family and are quite evenly distributed. They have not the eminently social nature that belongs to the Cliff Swallow, neither have they the intolerance for others of their kind, which the Tree Swallow exhibits in the nesting season. A barn or shed is quite as likely to shelter a single pair as more, though several pairs frequently live together in harmony. I have known them to come as early as April 20, but more often it is a week later than this before they appear. They are the last of our swallows to depart in autumn, though they are all forced to go comparatively early on account of a lack of flying insects, which constitute the major part of their food. Only stragglers remain after the first week in September. My latest record is September 17.

Tachycineta bicolor. TREE SWALLOW. 614.

The White-bellied, or Tree Swallow, is the earliest of its tribe to arrive in spring, coming when the weather is suitable as early as the fourth of April, according to my notes. It still nests, now and then, in old woodpecker holes, but not as a rule. A bird house is more to its liking, and even a rat hole in the roof of a dwelling answers all purposes. It is a good fighter and engages in many a conflict, both offensive and defensive, with English Sparrows, Bluebirds, and Martins before they are all settled. They do not employ mud in nest building, as Barn and Cliff Swallows do, but limit their materials to dry grass and feathers. Soon after the young are strong, which is about the first of August, they all disperse and only an occasional one is seen afterward, usually accompanied by Barn Swallows. The latest flight that I ever saw passed in a scattered flock over Hampton marshes September 5, 1889.

Riparia riparia. BANK SWALLOW. 616.

I do not know that there is a family of Bank Swallows in this vicinity. Certainly Durham clay is not what they require for mining purposes. The fact that they are the most local of the swallow family is undoubtedly due to the comparative rarity of sand banks of suitable consistency for safe tunneling. I have never had an opportunity to observe the time of their coming, though I have sometimes seen them in company with other swallows toward the end of summer, but never later than the twentieth of August. Bank Swallows are not always easy to distinguish from female Tree Swallows, but a Tree Swallow does not have the dusky bar across its breast that is always present on the Bank Swallow. The nest is a slight affair composed wholly of grass, the cavity containing it varying in length from eight to eighteen inches.

FAMILY AMPELIDÆ.

Ampelis cedrorum. CEDAR BIRD. 619.

Cedar Birds are usually reckoned with the summer residents, but they are quite able to withstand the cold of winter, and sometimes do so. On the tenth of February, 1900, I saw a flock of twenty-eight, contentedly preening themselves in an apple tree near Thompson hall, after a meal of red cedar berries from trees near by. On the fifteenth of the following March I saw thirty-five, dividing their time between eating cedar berries and whispering together in some gray birches. As a general thing, however, they are not seen much after the middle of October, and do not appear again till about the tenth of April. They are gregarious at all times. Before bird-cherries and other early small fruits are ripe, they stay for the most part in the vicinity of water, where they perch on exposed branches and dart out after passing flies and other insects with considerable address. They delight in gluttony, and when fruits are fit for eating, they gorge themselves to the full. Parental duties are delayed till July, when they are prosecuted with such dispatch that young and old are shortly companions at the choke cherry feasts, the blueberry feasts, the black cherry feasts, and all the other feasts that are daily enjoyed. Graceful, indolent, beautiful, soft-voiced epicures—they are the tip-tops of feathered aristocracy.

FAMILY LANIIDÆ.

Lanius borealis. NORTHERN SHRIKE. 621.

This shrike is a winter visitant, coming south in November and going north in April. Though the southward wave of migration passes us, stragglers are occasionally seen throughout the winter. I have found them near water oftener than elsewhere. Though they sometimes pursue small birds, insects form the main element of their food. They are accustomed to perch on a stake or a lone tree, which affords them a good outlook, and scan the ground for insects.

Lanius ludovicianus. LOGGERHEAD SHRIKE. 622.

The Loggerhead is an occasional summer resident, most likely to be seen in August after the young are on the wing and scattered abroad. Its general habits are like those of the Northern Shrike, which it resembles also in color, but differs from in size, being smaller. Its nest, which is likely to be found in an apple or other scrubby tree, is a well made structure of sticks, lined with soft materials, quite creditable to the builder. There need never be any confusion in the mind of an observer as to which of the two shrikes he sees, as this species s seen only in summer, and the other only in late autumn, winter, or early spring.

FAMILY VIREONIDÆ.

Vireo olivaceus. RED-EYED VIREO. 624.

The familiar Red-eye is an impartial seeker in woodland, orchard, and shade tree. Its song is a constant reminder of its presence at all times of day from May until August. Its spring coming varies considerably. For the last three years its record stands: May 13, May 8, May 24. The latest fall record that I have is September 15. The food habits of this vireo are of especial interest to the agriculturist, as it is one of the few birds known to destroy hairy caterpillars. Its nest, which is suspended between the forks of a low branch, and sometimes surprisingly near paths or highways, is usually largely composed of birch bark, though in one instance I have known newspaper to form a considerable part of the structure. The song and call notes, when once learned, furnish the readiest way of distinguishing the vireos from one another. When near at hand, the narrow black and white lines above the eyes of this species serve to identify it.

Vireo gilvus. WARBLING VIREO. 627.

Warbling Vireos are less abundant here near the sea in summer than a few miles inland, though they are very common during the migration seasons. They are essentially village birds, preferring the maples and elms of the street to any other situation. There they sing early and late as they flit from branch to branch, twisting their necks this way and that, while peering in every direction for such insects and larvæ as infest foliage. They nest in town also, but select high sites where the dangerous small boy cannot go. I have recorded their spring coming on different dates between the fourth and the tenth of May; and their latest appearance has varied from the eleventh to the nineteenth of September. The nest of this species is pendant like that of all the family, but ordinarily placed much higher above the earth.

Vireo flavifrons. YELLOW-THROATED VIREO. 628.

The Yellow-throated Vireo breeds regularly at Hampton and more or less commonly at Exeter, but it is infrequently seen here at Durham, even in the migrating seasons, though it ought to be found nesting occasionally. I have usually found it near water, searching the foliage of deciduous trees. The earliest date on which I have noted this species is May 18, and the latest August 29. Two May stomachs which I have opened contained coleopterous, hemipterous, and hymenopterous insects.

Vireo solitarius. BLUE-HEADED VIREO. 629.

The Blue-headed Vireo appears to be only a migrant in this immediate locality, at least it is not ordinarily to be found here in the nesting season, though in August it is often very common. However, one need not go more than twenty or thirty miles back from the coast to reach its regular summer haunts. It is the first vireo to come north. Even before the buds have swelled appreciably, the bold song of the Blue-head may be heard in the woods. I have twice recorded its presence on the twenty-seventh of April. Its migrations are conducted so leisurely that we find them here nearly a month in spring, and considerably more than that in autumn. Though lovers of woods they are fond enough of town life, where there are plenty of trees. In the old elms of Exeter they are common during the autumnal movement. I have not recorded them later than the twenty-fifth of September.

Vireo bellii. BELL'S VIREO. 633.

On the nineteenth of November, 1897, a cold, cloudy day, while driving along the road leading to Piscataqua bridge, my attention was attracted by a small dull-colored bird. It appeared to be chilled, as it fluttered from twig to twig of a tangled growth of poison ivy that overrun an old wall by the roadside. Such a bird was altogether out of season, and I immediately decided upon a post mortem examination as the only sure means of determining its identity. It proved to be a specimen of Bell's Vireo, a species normally found on the prairies and hitherto unknown in New England. Its mounted skin is now in the college collection. In size this vireo is much smaller than any of its kind ordinarily found here. Its general appearance is not unlike that of the Ruby-crowned Kinglet, the main difference being that it has no white eye ring, no scarlet crown patch, and that its bill is plainly after the vireo type—much stouter than a kinglet's. Its throat and breast are also of a somewhat lighter shade.

FAMILY MNIOTILTIDÆ.

Mniotilta varia. BLACK AND WHITE WARBLER. 636.

This very common warbler has been seen here as early as the twenty-seventh of April, though more often it makes its appearance during the first week in May. The males usually arrive first, being followed in a few days by the females. By the middle of May they are paired, though it is often two weeks or more before family cares begin in earnest. The latest record of this bird's presence that I have, is September 15. A stomach from a Black and White Warbler which was found dead at Thompson Hall in May, 1900, contained only the remains of small beetles. This warbler's peculiar habit of creeping about the trunks and larger branches of trees sets it somewhat apart from the rest of its family. It prefers evergreen woods as a rule, though it is by no means uncommonly seen on deciduous trees.

Helminthophila chrysoptera. GOLDEN-WINGED WARBLER. 642.

According to all the authorities that I have been able to consult, this species has not heretofore been reported from New Hampshire. I have in my collection a male taken in some low bushes by the mill-pond here at Durham, May 24, 1898, which is the only specimen of this warbler that I have seen alive. It is regularly found in certain localities in eastern Massachusetts, and is pretty certain to be noted here occasionally. Its song, a monotonous "*zee-zee-zee-zee*," is harsh, and so unlike the notes of our other birds, that a person with some knowledge of songs in general will be quick to apprehend its presence in spring.

Helminthophila ruficapilla. NASHVILLE WARBLER. 645.

This warbler is very common, and readily observed during the spring migration, for then the male devotes considerable time to singing. It frequents sprout land and bushes, rather than woods of larger growth. I have recorded its appearance from the fourth to the eleventh of May. The flight lasts a week or ten days. A few remain to breed. Mr. Shaw has found one nest at Hampton.

Helminthophila celata. ORANGE-CROWNED WARBLER. 646.

In "New England Bird Life," Vol. I, p. 119, it is stated that this warbler has been found at Hollis and the Isles of Shoals. At the latter place, a female was taken September 9, 1877.

Compsothlypis americana usneæ. NORTHERN PARULA WARBLER. 648a.

The Parula, or Blue Yellow-backed Warbler, is a local summer resident, common spring and fall. Its date of appearance is quite constant. In three successive years, it has come on the eleventh, thirteenth, and twelfth of May, respectively. The latest date on which I have observed it is September 13. Four Parula stomachs which I have opened, contained hemipterous, coleopterous, hymenopterous, and dipterous insects, beetles predominating. The hemiptera were capsids and tingitids, and among the coleoptera were a cerambycid and several chrysomelids. In addition, one stomach contained a spider and two lepidopterous larvæ. This warbler is usually found in well grown, mixed woods. It has been found nesting at Hampton, by Mr. Shaw, who has a nest in his possession. To one unacquainted with the architecture of this warbler, such a nest is a curiosity, It is constructed of the long, stringy moss (*Usnea*) that is found suspended from the branches of trees in swamps, by winding it loosely around a branch. The eggs are deposited in the "slack" underneath.

Dendroica æstiva. YELLOW WARBLER. 652.

Yellow Warblers are here sometimes by the fourth of May, and from then on till September they are abundant in the neighborhood of fresh water. They frequent deciduous trees and bushes, and exhibit little of the shyness so characteristic of many warblers. The nest, which is composed largely of cottony materials, is placed in an upright fork, usually near the ground but occasionally at a considerable height.

Dendroica cærulescens. BLACK-THROATED BLUE WARBLER. 654.

This species is only a migrant, and generally is rather uncommon. If an observer searches diligently from the fifteenth to the twentieth of May, he is usually able to see two or three. Though it is essentially a woods bird in its summer home, in the higher portions of this state, I have found it here in roadside trees quite as often as in the woods.

Dendroica coronata. MYRTLE WARBLER. 655.

The spring movement of this abundant migrant goes on so quietly and with so little show of numbers that one is led to marvel at the army of Yellow-rumps that overrun the orchards and pastures in October. I have seen them here in spring as early as March 5, but that is exceptionally early, and frequently it is a month later than that, before the migration is well in progress at this point. The last of them go northward about the middle of May. I have noted them plentiful as late as on the eleventh of that month. My earliest fall record is

September 19. They become abundant within a day or two of October 1, and continue in great numbers for two weeks. By the twentieth of October the majority are gone, though a few remain till the first of November, and I have seen one at Hampton, in company with Tree Sparrows, as late as November 30. A fortunate versatility of appetite enables them to change their diet when the supply of insects wanes. Their chief food while here consists of bayberries. Stomachs of late spring and early fall specimens contain little besides insects, but nearer the extremities of winter, these berries are eaten to a great extent. After the arrival of the large flocks in the fall, they almost constantly remain in the vicinity of patches of bayberry bushes. I have also observed them eating these berries in spring, even as late as the sixth of May.

Dendroica maculosa. MAGNOLIA WARBLER. 657.

The Black and Yellow or Magnolia Warbler usually arrives between the tenth and sixteenth of May, and for a week or ten days is fairly common. It is one of the most vivacious of this active family, and is proportionally difficult to study in the field. It prefers evergreen trees or shrubbery, and generally is seen not far above the ground. This species does not breed here though it is a regular summer resident nearer the White Mountains. The autumnal movement is accomplished early, so silently that it often escapes notice altogether.

Dendroica pennsylvanica. CHESTNUT-SIDED WARBLER. 659.

Chestnut-sided Warblers are common summer residents, having a preference for deciduous shrubbery and sprout land. I have noted their appearance on the eleventh of May and within two or three days of the arrival of the first comer they are usually plentiful. The nest is placed in the fork of a bush, near the ground, often in one of those tangles of brush and bushes which follow the clearing of a wood-lot. Early in September they fall in with the great troop of migrating warblers, which surge through our woodlands, and all together are soon off on their long journey.

Dendroica castanea. BAY-BREASTED WARBLER. 660.

Bay-breasted warblers are regular migrants, but they are so few, that the best observers often fail to observe them as they pass. In three years' residence in Durham, I have seen but one, and that was on the twentieth of May. There is a week, beginning according to the season, between the twentieth and twenty-fifth of May which might well be designated as "warbler week." Then, for a few days, the woods seem to be alive with them, and whoever will study warblers will miss his main chance if he is not in the woods at sunrise. Let him go along the eastern margin of low woods, keeping just outside, on grassland or in the highway where he can move about without making much noise, and the birds will come to him to enjoy the warmth of the rising sun, and moreover to catch the insects that are active here before those deeper in the woods are astir. The few Bay-breasted Warblers that I have seen were all discovered in the way I have just advocated. They have always been in company with other warblers, but I have never seen more than one at a time.

Dendroica striata. BLACK-POLL WARBLER. 661.

Black-polls are common spring and fall migrants. They come between the twentieth and the twenty-fifth of May—that is, simultaneously with the Bay-breasted and Canadian Warblers, but they are far more abundant than either of the latter species. Spring migrants are oftener found in apple or maple trees on cultivated land, than in the woods. But in the fall I have usually seen them among gray birches and other more or less scattered pasture trees. I have found them here in autumn from August 31, until October 4. The young birds have no black on the crown, and are suffused above and below with a yellowish tinge, which renders them so unlike the adult male, the one usually seen in spring, that they are not readily recognized.

Dendroica blackburniæ. BLACKBURNIAN WARBLER. 662.

In point of numbers, Blackburnian Warblers rank among the scarcer species but from the standpoint of beauty, none excel it. The males come first, and while they are often solitary, I have seen no less than six in the same tree at once. My earliest record of this warbler's occurrence here in spring is the eleventh of May. As a rule they frequent evergreen woods, hemlocks and spruces preferred. They breed sparingly in the central portion of this state, and very probably do so here, though I have no data to this effect.

Dendroica virens. BLACK-THROATED GREEN WARBLER. 667.

There is still snow in the woods, and the leaves are still in bud, when the song of this common summer resident is first heard in the spring. Its earliest appearance that I have recorded was on the fifth of May. In autumn it remains well into September, and in one instance I have seen it on the thirtieth of that month. Though it shows a marked preference for pine woods, its nest is sometimes found quite away from them. I have a nest that was built in an apple tree, and Mr. Shaw tells of one which he found at Hampton in a barberry bush. The song of this warbler is always of the same character, yet subject to more or less variation. It is a familiar sound to everybody accustomed to roaming afield in the springtime.

Dendroica vigorsii. PINE WARBLER. 671.

Pine Warblers begin to appear in spring as early as the fifteenth of April, thus being second on the list of warblers taken in the order of their coming, the Myrtle Warbler being first. For the first few weeks after its arrival it may be seen in all sorts of trees, in all sorts of situations: but after the weather has become warm, it retires to the pines for the summer. It is frequently given to searching the crevices in the bark of trees, and then falls into the manner of the Black and White Creeper. Its dull color and quiet ways render it one of our most inconspicuous warblers, while its song, which can hardly be told from a Chipping Sparrow, will not disclose it to one not already acquainted with it. It is a regular summer denizen of such pines as lie north of the college reservoir. I have known it to remain in autumn till the thirtieth of September.

Dendroica palmarum hypochrysea. YELLOW PALM WARBLER. 672a.

This species, which is only a migrant, is fairly common spring and fall in fields and pastures. Unlike others of this family with which we are familiar, Palm Warblers love the ground and are generally seen either on or near it. I have observed them repeatedly in the pasture back of Thompson hall, now on the grass and again in the barberry bushes or scrub apple trees, searching actively for insects. Their longest stay in any one spring that I have observed extended from the seventeenth of April to the eleventh of May. In a single autumn I have recorded their presence from September 20 to October 1. The stomach of a specimen of this species taken in May contained May-flies, leaf, and other undetermined beetles, a fly (*muscid*) and the remains of a hemipterous insect which I could not identify.

Seiurus aurocapillus. OVEN-BIRD. 674.

The Oven-birds come with such regularity each spring that I have come to regard the eleventh of May as their schedule date for arriving. I have not seen them in the fall later than the twenty-third of September. They belong to dense woods, regardless of the kind of trees, as they look for subsistence to the earth in particular. They walk over the fallen leaves with an energetic dignity that is quite amusing, and their quaintness is even greater as they parade up and down a naked branch after being disturbed, with tail beating time. Their song, when delivered in full volume, has a piercing quality that is well-nigh distracting if a person is listening for some other sound. The Oven-bird gets its name from its nest, which is built on the ground and roofed with leaves and twigs, so that it is difficult to discover unless one sees the old bird leave it.

Seiurus noveboracensis. WATER-THRUSH. 675.

The Water-Thrush, Water Wagtail, or Water Accentor, as it is variously termed, is always found near water, either by a brook or on the wooded shore of a pond, or in a swamp. It is in the swamps as early as the thirtieth of April, but difficult to find when silent, and when the season of song is over one may as well look for a needle in a haymow as for Water-Thrushes. I have never seen one later than the twenty-sixth of September. I have found them in the breeding season in the swamps of Barrington and Lee, and during the fall migration they usually visit the little brook in the rear of Thompson hall, and often remain there in September for a fortnight. Like the Oven-bird it is accustomed to *walk* when on a smooth surface, yet it *hops* from rock to rock, or from branch to branch, as readily as a sparrow. It feeds from the margins of pools and brooks, and frequently takes bits of food that are floating on the surface. The incessant wagging of its tail suggests an agitated sandpiper.

Geothlypis agilis. CONNECTICUT WARBLER. 678.

If one knows just when and where to look for this warbler I believe it is not difficult to find, but otherwise there are several obstacles to its discovery. In the first place it looks so much like a female Maryland Yellow-throat that it would pass for one unless seen under very favorable circumstances; further, it keeps close in the shrubbery, and will hide if approached closely enough for a good look; and still further it comes to us only in the fall, the season of silence when the eye is almost unaided by the ear, and so many birds pass unheeded. It is to be distinguished from the Maryland Yellow-throat by its white eye ring, and by the sides of its breast, which are heavily shaded with olive. September 23 and October 11 are the earliest and latest dates on which it has come to my notice.

Geothlypis philadelphia. MOURNING WARBLER. 679.

The Mourning Warbler is a migrant so rare that very few observers ever see one. I have never seen one living. Miss Mary Calef of Exeter has shown me the skin of a male caught there by a cat sometime during the first week in June, 1900, which is the only evidence of its presence that I have been able to find.

Geothlypis trichas. MARYLAND YELLOW-THROAT. 681.

Of all the warblers found here, none are so numerous as the Maryland Yellow-throat. There is hardly an alder run or a briar patch that does not harbor at least one of these little pessimists. They love a water-course for its insects and sheltering tangles, and go where you will in this region of creeks and brooks the fussy challenge and black mask of the Yellow-throat is sure to greet you. As one regards the little imp scolding vociferously at being interrupted, it almost seems as if he would not look on the bright side of life, even if he had to close his eyes to avoid it. But when, all undisturbed, he feels an impulse to sing and rises to some half-prominent twig to utter his cheerful little song, he seems quite a different bird. It is surprising to note the variations in this song in different localities. The voice is always the same, but the composition and accent is sometimes unrecognizable. My earliest spring record for this species is May 11. They are abundant up to the middle of September, and sometimes linger till October 1. Of two stomachs of this species, one taken August 30 and the other September 24, neither contained any vegetable matter. Their contents included spiders, dipterous larvæ, coleoptera, hymenoptera, and hemiptera. The nest is usually placed near water in a tuft of grass. It is hard to find, unless the bird is seen carrying material for its construction or to feed her young.

I once saw a Maryland Yellow-throat which I thought was amply justified in complaining of its lot.

It was an immature male which I found spending the winter at Plymouth, Mass. I was surprised to hear the familiar plaint, one chilly morning in December, so far north. The sound came from a patch of rank weeds, where a number of Song and Tree Sparrows were gleaning a breakfast. I investigated, and sure enough, there was a Yellow-throat chumming with the sparrows, though what he found to eat, I do not know. On New Year's day the weather became decidedly cold. Three inches of snow fell during the day, the ground had previously been bare, and the thermometer went down to four degrees above zero, Fahrenheit, that night. The morning of the second, brought rigorous weather. A gale from the north was so severe that three schooners went ashore in the harbor, and the mercury was still near the zero mark. I went in search of the colony of birds I had been watching from day to day. The sparrows were in the lee of the sand-hills unconcernedly getting breakfast, but what of their warbler companion? I found him at last, at the top of a bluff, facing the east and overlooking Cape Cod Bay. A bleaker scene would be hard to find; yet here, on a few inches of bare frozen earth, sheltered by some dead grass that was still standing, was our pilgrim. Probably for the first time in his life he was silent when there was a man in sight. He was evidently very cold, but he hopped about in a determined way, as if he meant to stick it out till spring, come what would, and I presume he did so, for the snow was gone in a day or two under the influence of ocean air, and there was not another bit of weather like that all winter.

Wilsonia pusilla. WILSON'S WARBLER. 685.

Wilson's Warbler, or Wilson's Black-cap, is one of the less common migrants that traverse this section, semi-annually. They frequent alders, willows, and other trees which grow in wet places. I have usually observed them along the course of the brook between Thompson hall and the mill-pond. I have seen them for the first time, two different years, on May 13. The first arrivals that I have seen have been males, the females coming somewhat later, at least as late as the twenty-ninth of May, on which date I have observed one. I have never noted their fall passage. The stomach of a specimen taken late in May contained remains of a spider and various insects, among which I could recognize characteristics enough to identify a lampyrid beetle, a small neuropter, and the dipterous families: *Muscidæ*, *Psychodidæ*, and *Cecidomyiidæ*.

Sylvania canadensis. CANADIAN WARBLER. 686.

If one searches lowland woods from the eighteenth to the twenty-fifth of May, he may form a passing acquaintance with the Canadian Warbler, otherwise he is not likely to meet it in this locality. At that time it is by no means rare. It is usually seen in company with other warblers that arrive at the same time, though apparently rather from a common impulse, than a real social instinct. While it is only a migrant here, one does not have to go more than thirty or forty miles toward the mountains to reach the outskirts of its breeding range.

Setophaga ruticilla. AMERICAN REDSTART. 687.

The Redstart is an abundant summer species, inhabiting thickets and woods, usually in the vicinity of water. Like the two preceding species, it is a fly-catching warbler, subsisting to a considerable extent upon flying insects. The males are often here by the tenth of May, and the females follow a few days later. The nest is a dainty cup-shaped affair, usually built in an upright fork of a small deciduous tree. Redstarts are generally all gone by the end of September, though I have on one occasion noticed an adult male on the fifth of October.

FAMILY MOTACILLIDÆ.

Anthus pensilvanicus. AMERICAN PIPIT. 697.

Pipits, or Titlarks, are abundant during their migrations, but are most noticeable in autumn, when they are to be found on the salt marshes almost continually from September 15, the average date of their arrival, till the middle of October. Their maximum numbers are reached during the first week in October, when the first cold snap sends the main host toward a warmer climate. Although the smoothly mown marshes around Great Bay and along the seaboard are their favorite feeding grounds in this region, it is not uncommon to see them running about cornfields after the corn is cut and shocked. A specimen shot in a cornfield late in September had eaten eggs of some undetermined insect, a larval fly, a click beetle, and ten snout-beetles belonging to the family *Otiorhynchidæ*.

FAMILY TROGLODYTIDÆ.

Mimus polyglottos. MOCKINGBIRD. 703.

I am able to add the Mockingbird to this list on the strength of an immature specimen killed at Hampton, August 24, 1900, and now in the possession of Mr. Shaw. This bird was evidently a young of the year, and showed no indications of having been caged. The occurrence of a mockingbird in New Hampshire is extraordinary, although I have been informed that a pair bred regularly near Worcester, Mass., some years since, and for aught I know, still do so.

Galeoscoptes carolinensis. CATBIRD. 718.

Almost every alder run and leafy thicket furnishes a summer home for Catbirds. May 7 is the earliest date I have set down for their coming—the average time being four or five days later. Insects form their chief diet until the ripening of berries and other small fruits, which then take a prominent place on their menu. They go to the earth for insects, but sing from a tree top, and the nest, which is a coarse, bulky structure, is built in a bush or sapling. After the early frosts come, Catbirds seek such moist runs as are in the shelter of pines or other dense trees, where they stay well into September, and I have known individuals to remain till the tenth of October.

Toxostoma rufus. BROWN THRASHER. 705.

The period of the Brown Thrasher's residence with us is practically the same as that of the Catbird, my earliest record being May 8, and my latest, October 10. Its food consists of insects, fruits, and seeds according to the season. A May specimen which I once examined had eaten a beetle, a smooth caterpillar, and a small snake. It makes its home in upland thickets, preferring dry to moist soil. Its nest is usually built in some dense bush, often a solitary one, such as a scrub apple tree, a barberry, or a thorn bush, though it is not infrequently placed on the ground. The extensive tracts of pasture land covered with juniper and barberry bushes, in this vicinity, offer famous retreats for Thrashers.

Thryothorus ludovicianus. CAROLINA WREN. 718.

In the second edition of Minot's "Land and Game Birds of New England," Mr. Brewster cites a record of the occurrence of this wren at Rye Beach, as follows: "Mr Spellman has also reported (Bull. N. O.

C., Vol. VI., 1881, p. 54) seeing two birds, one of which he shot, at Rye Beach, N. H., August 7, 1880." Of course this is considerably north of the normal range of the Carolina Wren, yet I have reason to believe that if New Hampshire ornithologists keep a sharp lookout, its occasional presence is likely to be announced anywhere in the southern or central portions of the state.

Troglodytes aëdon. House Wren. 721.

While House Wrens are likely to be found breeding anywhere in this locality, at the same time they are actually so scarce as to be almost rare. My only record of this Wren's appearance here relates to a spring migrant which I observed on the nineteenth of May. They are certainly less common in this state now than they were fifty years ago. The years in which I have seen one are many less than those in which I have seen none. I have not found it in any of the collections around here that I have visited. It is to be looked for along tumbled-down stone walls, half hidden by raspberry bushes and decaying brush. The song of this species is agreeable to hear, yet inferior to that of its relative, the Winter Wren.

Olbiorchilus hiemalis. Winter Wren. 722.

Winter Wrens usually journey northward through this section during the latter half of April. They move along very quietly, and generally escape the notice of casual observers. In the fall they usually appear about the twelfth of October; few remain after the end of that month, though sometimes they stay much later. Mr. George F. Wentworth has seen a pair at Dover on the thirtieth of December, and Mr. Shaw tells of one which he saw at Hampton in January. I hardly think Winter Wrens can be found here in the summer, but a little nearer the mountains they are to be found in moist woods during the nesting season. The song of this wren is marvelous for volume and melody, and is delivered with such an energetic abandon that a listener cannot help wondering how the singer manages to keep his hold on the perch.

Cistothorus stellaris. Short-billed Marsh Wren. 724.

An item from the pen of Mr. William Brewster in the second edition of Minot's "Land and Game Birds of New England," page 76, note, concerning this species, informs us that it is "known to breed at least as far north as Rye Beach, N. H." This evidence of the bird's presence is sufficient, in spite of the fact that all inquiries among local ornithologists have failed to support it.

FAMILY CERTHIIDÆ.

Certhia familiaris americana. BROWN CREEPER. 726.

Although I should not be at all surprised to hear of a creeper's nest in the college pines, where they usually remain in spring longer than anywhere else about here, such would be an exceptional case, for, as a rule, Creepers are not seen after the first week in May. The earliest fall record that I have is September 16. After the weather becomes cold they join that well known band of Chickadees, Nuthatches, Woodpeckers, and Kinglets, which help so much to keep up the spirits of bird lovers during the winter. It is difficult to imagine anything in feathers more subdued than a Creeper. Its color, its size, its mode of search for food, and its call note are all calculated to avoid notice. It is usual to find two or three moving along in the same company, yet without appearing to pay any particular attention to one another. But while ordinarily sober in all things they are sometimes moderately enlivened. I well remember a bright February morning when four of them, assembled in a little oak grove, entertained me with songs and a mild game of hide and seek, in which two birds took opposite sides of the same tree, and went round and round, each out of the other's sight. The song was of the same quality as the familiar call note, but it was louder and connected into almost a warble, quite a pleasing effort. The Creeper's progress depends on its legs quite as much as on its wings, being on general principles not unlike that of flying squirrels. Both begin at the base of a tree, ascend it, dart off obliquely to the base of another tree, and repeat the process indefinitely.

FAMILY PARIDÆ.

Sitta carolinensis. WHITE-BREASTED NUTHATCH. 727.

The White-breasted Nuthatch is a resident throughout the year. In winter there is more or less of an influx from the north, and during that season they are more evenly distributed than in summer. They are not confined to the woods, but visit the village fruit and shade trees as well, and not infrequently nest there. A pair built in an apple tree near the Durham post-office in 1898, so near a path that people passed within two feet of the nest many times a day. I have also known an old nuthatch to rear her young in a hole at the end of a ridge-pole of a barn. The common nesting site is a decayed stub or large branch, which is easily drilled.

Sitta canadensis. RED-BREASTED NUTHATCH. 728.

Red-breasted Nuthatches are abundant winter birds in coniferous woods. The college pines and the tract of smaller growth lying north of the reservoir support numbers of them every winter. Unlike their white-breasted cousins they rarely appear in public places, but are easy to find by their call notes, when they are sought. I have not seen them here in summer, the earliest date on which I have observed them in autumn being September 14. They breed in the interior of the state and probably do so sparingly in this vicinity. Their nestings are similar to those of the White-breasted Nuthatch.

Parus atricapillus. CHICKADEE. 735.

Chickadees are common the year round, but most abundant in winter, when numbers come from farther north. They are the leading spirits in each roving company of winter birds that one finds in the woods. They are quick and alert, take delight in teasing an owl, and are ready to sound the alarm at the appearance of a hawk, when their associates, the Nuthatches and Woodpeckers, would be as silent as so many sticks. Although essentially insectivorous, I have observed that they do not hesitate to devour such vegetable matter as bayberries and seeds of poison ivy. They peck a hole in a decayed tree for a nest, usually near the ground, both sexes working alternately. One goes in and comes out directly with a chip in its bill; the instant the hole is vacant, the other dives in and as quickly reappears with another chip. After steady labor for fifteen or twenty minutes both go away a little while for rest and food; but they are very industrious and a nest begun is soon completed. Unlike Woodpeckers, which lay their eggs on the bare floor of the cavity they have excavated, Chickadees collect a large amount of hair with which they construct a soft, warm nest. While Chickadees are generally very peaceful among themselves, there is a week or so about the first of March when they are inclined to be quarrelsome. I presume that to be the mating season.

FAMILY SYLVIIDÆ.

Regulus satrapa. GOLDEN-CROWNED KINGLET. 748.

Golden-crowned Kinglets are here in varying numbers from about the first of October until the first of May. Some years they are common all winter, and again only a few remain through the season of intensest cold. They frequent all kinds of trees impartially, and rarely stay anywhere more than a second or two while daylight lasts. In point of restless activity, the Kinglets, this and the next species, rank next to the Hummingbird. They are constantly darting here and there, a characteristic action being to hover for an instant beneath a leaf or branch for the purpose of investigating the under side. This quick, hovering attitude is diagnostic of the Kinglets in their season, when warblers are mostly gone. The yellow or orange patch on the crown of this Kinglet is obvious. The males are evidently conscious of this beauty spot, as I have repeatedly seen them bow and expand it when in the presence of the other sex. Once, on the eleventh of March, I heard a Golden-crowned Kinglet sing. The singer did not devote his entire attention to music but sang as he went about his hunting. The song is clear and musical but rather abrupt, and quite inferior to that of the Ruby-crowned Kinglet.

Regulus calendula. RUBY-CROWNED KINGLET. 749.

The Ruby-crowned Kinglet is a spring and fall visitant. I have noted it here on the twenty-ninth of September, and from then on until about the twentieth of October. In the spring visit of this Kinglet, which begins about the twentieth of April, and lasts hardly more than a week, it is not unusual to hear its song. It has a brisk mellow whistle, which is very pleasant to the ear. Its manners are quite similar to those of its golden-crowned relative, but it may be readily recognized by its white eye ring, which is always noticeable.

FAMILY TURDIDÆ.

Hylocichla mustelinus. WOOD THRUSH. 755.

The Wood Thrush appears to be rare this side of Massachusetts. The only evidence of its presence that I have been able to get comes from Mr. Shaw, who reports having once seen it at Hampton. He also has a specimen taken at Amesbury, the first town across the Massachusetts boundary.

Hylocichla fuscescens. WILSON'S THRUSH. 756.

The "Veery," Tawny, or Wilson's Thrush is the commonest representative of its tribe which we have in summer. Its stay is considerably shorter than the Hermit's. May 11, is the earliest date on which I have noted it. The autumnal flight is practically ended the last week in September. It prefers low, moist, deciduous woods.

The nest, a bulky affair of coarse materials, is built on the ground or in a low bush. It is not always easy to distinguish between this species and the Hermit, by sight, but when the light is right, the breast spots are seen to be much fainter than those of the Hermit, and the back, rusty red throughout, in contrast with the Hermit's, which is olive from crown to rump.

Hylocichla ustulatus swainsonii. OLIVE-BACKED THRUSH. 758a.

Though Durham is within sixty or seventy miles of the summer home of this thrush, it is but rarely seen here. I suppose the majority fly over without stopping so near the end of their migration. In other words we are not a day's journey from the Olive-back's home, and being of a business-like nature, it does not visit this historic spot merely because it is a point of interest to men. I have looked for them year after year, but not until the spring of 1900 was my labor rewarded. On the twenty-second of May, that year, I discovered one, near sunset, making its way across some cultivated land by short flights. I surmised that it was taking advantage of the approaching dusk to go from one piece of woods to another, as it showed no inclination to stop and feed. Other observers, who had looked in vain as long as I, were not less fortunate that spring. In the central part of the state, where they are as rare as here, they were common for a week or more. It is readily distinguished from the other thrushes by its back, which is dark olive throughout.

Hylocichla guttata pallasii. HERMIT THRUSH. 759b.

The Hermit Thrush is a summer resident. A pair or two may usually be found in the dense pines near the college reservoir, and other similar growths are likely to shelter them; but I have never found them nearly so plentiful here as they are nearer the mountains. My earliest note of their arrival in spring is dated April 5, but as a rule it is nearer the middle of that month when they are first seen. In autumn the main flight occurs about the twentieth of October, though more or less linger till well in November. Their food consists mainly of insects and berries. In October I have known them to eat freely of the berries of the common elder. I am usually able to distinguish this species in the woods, by the color of its back and tail, if I can get it in proper light. The tail is rusty, in marked contrast with the olive-brown back and head. The breast, too, is rather heavily spotted, far more so than that of Wilson's Thrush, the only other likely to be seen here in summer. It is as a vocalist that the Hermit deserves especial notice. Its inspiring song is doubly impressive because it is rendered in the quiet hours of morning and evening, or during the lull following a summer shower, when the clear, soul-stirring melody of this prince of preachers comes up from the somber pines like a benediction.

Merula migratoria. American Robin. 761.

Robins are to be found in this corner of the state all the year round though I believe those found here in winter are not the same that summer here. Brief selections from my notes on the Robin for the year 1898 present an average statement of its movements. They are as follows: February 14, a warm morning, Robins calling in the pines east of the mill-pond; March 11, a large flock flew over—first wave of migrants; April 21, the migration is ended; April 25, a nest is completed in an apple tree, while there is not yet a leaf on it; November 8, a springlike day, the last southward flight passed over between eight and ten o'clock in the morning, five flocks aggregating about two hundred. Robins seen here between December 1 and March 1 must be reckoned as winter residents, as migration waves do not pass during that period. There is comparatively little snow here and Robins are able to spend the winter without especial hardship. They find an abundant supply of barberries and red cedar berries on which to subsist, and plenty of dense pine woods to shelter them from cold winds. If one will take the trouble to search diligently through the woods and pastures that lie between the Newmarket road and Great Bay, he is almost certain to find Robins at any time during the winter.

Sialia sialis. Bluebird. 766.

The first Bluebird comes very regularly on or about the tenth of March, unless prevented by unusually severe weather. The main body of migrants comes about April 1, and for a week or so Bluebirds are really plentiful, but when the final flight is passed they are sadly few.. The fall migration is practically ended by the twenty-fifth of October, and by the first of November the last one has disappeared. So long as insects are to be found in sufficient quantities, they constitute the Bluebird's principal diet, but, as the insect supply wanes, various small fruits are consumed. The pale berries of the panicled dogwood (*Cornus paniculatus*), which grows in this vicinity quite abundantly, are eaten to a considerable extent in October. It is a pity that a bird so manifestly correct in every particular should not be more abundant. Their numbers during migration do not indicate approaching extinction, but they are apparently leaving us for a more satisfactory realm somewhere to the northward, quite possibly in the newly cleared portions of northern Maine. We cannot blame them for deserting us. English Sparrows pre-empt their former nesting places in hollow trees and bird-houses, and if they find a shelter and build a nest, it is too often despoiled by boys as soon as the eggs are laid. Three years ago I put out a dozen nesting boxes on the college property, hoping to induce more Bluebirds to spend the summer here. I visited them at times to learn the success of my undertaking; at first, I had to climb, but before long, an egg collector got to making the rounds also, and after that I had only to see if the roof was on, to be sure that a box had not been occupied.

A SUPPLEMENTARY LIST.

INCLUDING BIRDS MORE OR LESS LIKELY
TO BE FOUND HERE.

ORDER PYGOPODES.

Cepphus mandtii. MANDT'S GUILLEMOT. 28.

This guillemot, which is hardly more than a northern race of the Black Guillemot, or Sea Pigeon, breeds from Labrador and Hudson Bay northward, and appears off our coast in winter.

Uria troile. MURRE. 30.

This species is similar to Brünnich's Murre in size, but the length of its bill is not less than three times its depth at the nostril. It is a scarce winter visitant off our shore.

ORDER LONGIPENNES.

Megalestris skua. SKUA. 35.

A rare comer from polar regions.

Stercorarius pomarinus. POMARINE JAEGER. 36.

This jaeger has a more northerly distribution than the Parasitic, but it ought to be seen occasionally by those who follow the sea in winter.

Stercorarius longicaudus. LONG-TAILED JAEGER. 38.

This is another species likely to be run across at intervals by any enterprising naturalist who will take ship in cold weather. The last three species are to be distinguished from gulls by their dark brown color, though to separate them from one another without shedding blood would be a more difficult matter.

Larus leucopterus. ICELAND GULL. 43.

This species is said to be similar in size and coloration to the Herring Gull, except that the tips of its wings are black. It is a rarity from the far north.

Larus kumlieni. KUMLIEN'S GULL. 45.

Very little is known about this gull. It is a winter visitant, equal in size to the Herring Gull, has the tips of its wings white, and its feet and legs are pink.

Larus atricilla. LAUGHING GULL. 58.

The Laughing Gull ought to be seen here in summer, though I have found no trace of it. In size it is like the Kittiwake, and its black head will reveal its identity a long way off.

Xema sabinii. SABINE'S GULL. 62.

This Gull is a resident of the Arctic regions that is occasionally seen spring and fall at least as far south as Long Island. It is as small as Bonaparte's Gull, but is distinguished by a forked tail, which is incised to the extent of about an inch.

Gelochelidon nilotica. GULLED-BILLED TERN. 63.

This is a southern bird that rarely strays to New England. It has been killed at least as far north as Grand Menan.

Sterna forsteri. FORSTER'S TERN. 69.

This tern is only a possibility, as at this latitude it is chiefly confined to the interior of the continent. One or two have been taken on the Massachusetts coast.

Sterna paradisæa. ARCTIC TERN. 71.

Although I have been unable to find an Arctic Tern, or anybody who had ever seen one, it is surely due to a lack of proper scrutiny on the part of the observers, as that tern must be found along the coast. In size it is a little less than the Common Tern, though its tail is longer. Its bill is carmine throughout.

Sterna dougalli. ROSEATE TERN. 72.

The Roseate Tern is of casual occurrence north of Cape Cod, but the Maine coast is sometimes visited by it, and undoubtedly ours is. Its bill is black, except for a little orange at the base.

Hydrochelidon nigra surinamensis. BLACK TERN. 77.

It is unlikely that this tern will be found here, perhaps, yet it has occurred in Maine and Massachusetts as a rare spring and fall migrant. It is an inhabitant of the interior and western portions of America.

Rynchops nigra. BLACK SKIMMER. 80.

The Skimmer must be an occasional passer off shore, as it is now and then reported from Maine, though it is uncommon north of New Jersey.

ORDER TUBINARES.

Fulmarus glacialis. FULMAR. 86.

Fulmars do not appear to be common much south of Newfoundland, but in winter more or less are to be seen off our coast. In coloration they resemble Herring Gulls, but their "double-barreled" nostrils prevent them from being thought gulls on close examination. The Fulmar averages nineteen inches long.

Fulmarus glacialis minor. LESSER FULMAR. 86a.

This is a sub-species of the last, to which it is similar in color and occurrence, but from which it is distinguished by its lesser size. Its average length is eighteen inches.

Puffinus stricklandi. SOOTY SHEARWATER. 94.

A summer visitor off the coast from the southern hemisphere.

Aestrelata hasitata. BLACK-CAPPED PETREL. 98.

Mr. Henry W. Osgood of Pittsfield writes me that a Black-capped Petrel was found in an exhausted condition in the town of Chichester, one mile south of Pittsfield, August 31, 1895. It was mounted by Mr. Osgood and is now in the collection of Dr. Brewer of Cambridge, Mass. It was evidently brought by a cyclone which visited that region a day or two previous to its capture.

ORDER STEGANOPODES.

Phalacrocorax carbo. CORMORANT. 119.

This species occurs similarly to the Double-crested Cormorant, but I do not know of a capture or an observation of it within the limits of this review.

ORDER ANSERES.

Mareca penelope. WIDGEON. 136.

This is the Widgeon of Europe, which has been known to straggle to the shores of this country quite a good many times. The adult male has its neck and the sides of its head chestnut, and it lacks the heavy green patch behind the eye, which characterizes the male of the American Widgeon or Baldpate.

Nettion crecca. EUROPEAN TEAL. 138.

This is another trans-Atlantic fowl that sometimes inadvertently comes to America. Its general coloration is very similar to that of the Green-winged Teal, but it differs in lacking the conspicuous white bar on each side of the breast.

Aythya vallisneria. CANVAS-BACK. 147.

It is highly probable that the Canvas-back appears here at irregular intervals, in autumn at least.

Somateria mollissima borealis. NORTHERN EIDER. 159.

This is a northern form of Eider, breeding in Greenland. It can be distinguished from the American Eider only after capture. The two projections of the horny bill-sheath, toward the top of the head, are parallel, narrow, and acute, on this species, in contrast to those on *dresseri*, which are divergent, broad, and rounded at the end.

Chen hyperborea nivalis. GREATER SNOW GOOSE. 169a.

This is a rare visitant to New England from the interior. Adults, excepting their black primaries, are entirely white.

Chen cærulescens. BLUE GOOSE. 169.1

This species nas been taken once or twice in Maine.

Anser albifrons gambeli. AMERICAN WHITE-FRONTED GOOSE. 171a.

Another possible visitant from the interior. Only a few have been taken in New England.

Branta nigricans. BLACK BRANT. 174.

The Pacific form of our Brant. It is accredited to southern New England, and it is not impossible that it may be found here. It is to be distinguished from our Brant by a broad white collar, broken behind in the middle of the neck.

ODRER HERODIONES.

Plegadis autumnalis. GLOSSY IBIS. 186.

This is a casual wanderer from the south. In October, 1858, an adult specimen was taken at Alton by Dr. Charles Palmer of Ipswich, Mass. (American Naturalist, 1871, p. 120.) It has also been taken several times in other New England states.

Ardea candidissima. SNOWY HERON. 197.

A rare, casual visitor from the south that has been observed in Nova Scotia, Massachusetts and Connecticut.

Ardea cærulea. LITTLE BLUE HERON. 200.

The Little Blue Heron has been taken in Maine and Massachusetts and presumably occurs here at rare intervals. Its northern limit on the Atlantic coast is normally New Jersey.

ORDER PALUDICOLÆ.

Grus mexicana. SANDHILL CRANE. 206.

In looking over the birds of Mr. Turner, taxidermist, Portsmouth, I discovered a Sandhill Crane, still in strings, with wires protruding. Mr. Turner stated that it was shot at Lovell's Pond, Wakefield, this state, about 1896. This specimen is now in the college collection.

Rallus elegans. KING RAIL. 208.

This rail is seldom found north of the Middle states, but its occurrence in Maine and other New England states entitles it to a place on this list of possibilities.

ORDER LIMICOLÆ.

Recurvirostra americana. AMERICAN AVOCET. 225.

New Brunswick, Maine, and Massachusetts each have records of the Avocet's appearance within twenty-five years.

Macrorhamphus scolopaceus. LONG-BILLED DOWITCHER. 232.

This is the form which replaces our Dowitcher, or Red-breasted Snipe in the west. It ought to be found here under the same circumstances as the common species, though far less abundantly.

Tringa ferruginea. CURLEW SANDPIPER. 244.

This wanderer from the old world has been taken a number of times at different points on the New England coast, both spring and fall.

Pavoncella pugnax. RUFF. 260.

The Ruff is a European sandpiper that has been found at various points along our New England coast. Its appearance nearest this locality, so far as I know, has been at Newburyport marshes, where a female was killed, May 20, 1871. (Brewster, American Naturalist, 1872, p. 306.)

Numenius borealis. ESKIMO CURLEW. 266.

This curlew is quite certain to be taken now and then during the migrating seasons. It is an abundant breeder in Laborador, but its route to and from appears to lie to the eastward of our shore. A northeast storm in September is likely to drive more or less of them ashore.

Hæmatopus palliatus. AMERICAN OYSTER-CATCHER. 286.

A rare bird this side of New Jersey, yet it has been taken as far north as the Bay of Fundy.

ORDER RAPTORES.

Cathartes aura. TURKEY VULTURE. 325.

The Turkey Vulture has been recorded from Maine, Vermont and Massachusetts, and is likely to be taken here sooner or later.

Elanoides forficatus. SWALLOW-TAILED KITE. 327.

The Swallow-tailed Kite has been observed several times in Massachusetts, and at least once in New Hampshire, at Franklin, where one was seen in 1875, by Mr. George Stolworthy of that town.

Buteo swainsoni. SWAINSON'S HAWK. 342.

Swainson's Hawk is not a resident this side of the Ohio river, but it has been found in Maine and Massachusetts, and hence of course is a possibility here.

Aquila chrysaëtos. GOLDEN EAGLE. 349.

The Golden Eagle is a rarity, even in the mountainous, unsettled parts of this state, and here it is not more than an unlooked for possibility.

Falco rusticolus. GYRFALCON. 354.

There are thought to be four varieties in boreal America, which sometimes visit the states in winter. Three of them have been taken in New England. They vary in color from black to white, but may always be identified by their large size—they are about two feet long—and the distinctly toothed cutting-edge of the upper mandible. A Black Gyrfalcon, sub-species *obsoletus*, was killed near Milford in 1891, and mounted by Mr. James P. Melzer of that town.

Falco peregrinus anatum. DUCK HAWK. 356.

The Duck Hawk is not rare in the wilder portions of New Hampshire, and presumably occurs here at irregular intervals.

Scotiaptex cinerea. GREAT GRAY OWL. 370.

This is a rare straggler from the Arctic regions in winter. It is larger than the Great Horned Owl and has no ear tufts.

ORDER PICI.

Picoides americanus. AMERICAN THREE-TOED WOODPECKER. 401.

This species, otherwise known as the White-backed, or Ladder-backed Three-toed Woodpecker, has been taken at Webster, N. H., and Lynn, Mass.

ORDER PASSERES.

Quiscalus quiscula. PURPLE GRACKLE. 511.

I take pleasure in recording here the occurrence of this bird at Tilton, this state, September 13, 1902. At the solicitation of a farmer whose corn was suffering from the depredations of a large flock of grackles, I undertook to repulse the enemy. I was successful. They left nine dead and did not return. Out of nine there were two that were unmistakably of this form. The skin of one is No. 13,446 of the Field Columbian Museum at Chicago: the other is in my possession. I believe this to be the first record of the occurrence of this grackle in New Hampshire. Its normal range is from southern Massachusetts southward east of the Alleghanies. As evidence that blackbirds sometimes move northward during the interim between their seggregation and final southward movement, this capture is of especial interest.

Acanthis linaria holbœllii. HOLBŒLL'S REDPOLL. 528a.

A variety slightly larger than *linaria*, and with a longer bill, not distinguishable, however, out of hand, from the common Redpoll with which it associates.

Acanthis linaria rostrata. GREATER REDPOLL. 528b.

Another variety occurring under the same circumstances as the last. It is decidedly darker than *linaria*, and larger, averaging 5½ inches in length. Both of these varieties are likely to be found any "Redpoll winter."

Ammodramus henslowii. HENSLOW'S SPARROW. 547.

This sparrow has been found breeding at Salisbury, this state, by Mr. C. F. Goodhue, and quite likely may be found here. If found at all it will probably be confined to some particular swamp or meadow, as its regular habitat is farther south.

Ammodramus caudacutus nelsoni. NELSON'S SPARROW. 549a.

This is a sub-species of our Sharp-tailed Sparrow that breeds in the Mississippi valley, but has been taken along the New England coast in migrating time. It is larger than *caudacutus* proper, more sharply striped on the back, and with chest and sides deep buff.

Ammodramus caudacutus subvirgatus. ACADIAN SHARP-TAILED SPARROW. 549b.

Another sub-species of the Sharp-tailed Sparrow, which replaces the type in Maine and the Provinces. It is similar to *caudacutus* proper in size, but is paler in color, has less streaks, and a smaller bill. This variety is said to be found during the migrations on the salt marshes.

Guiraca cærulea. BLUE GROSBEAK. 597.

According to Chamberlain (Nuttall's Ornithology, 1896, p. 372) this Grosbeak has been taken in Massachusetts, Maine, and New Brunswick.

Piranga ludoviciana. LOUISIANA TANAGER. 607.

This tanager has been taken in Maine and Massachusetts. It is an accidental visitor from the Great Plains.

Piranga rubra. SUMMER TANAGER. 610.

Summer Tanagers have been seen at Franklin, this state. Specimens have been taken in New Brunswick, Nova Scotia, and Massachusetts. Their ordinary habitat is the southeastern portion of the United States.

Ampelis garrulus. BOHEMIAN WAXWING. 618.

The Bohemian Waxwing, as its name implies, is a wanderer. It rarely shows itself in New England, yet it is a possibility any winter.

Vireo philadelphicus. PHILADELPHIA VIREO. 626.

This vireo breeds in the White Mountains and Maine, and ought to be found here occasionally in the migrating period. It bears so close a resemblance to the Warbling Vireo that it is likely to pass unnoticed.

Vireo noveboracensis. WHITE-EYED VIREO. 621.

The White-eye is rare. A single report of one found at Franklin is all the evidence of its presence in the state that I have. It comes regularly to Massachusetts and Nova Scotia.

Helminthophila peregrina. TENNESSEE WARBLER. 647.

Tennessee Warblers breed in the north and must pass this way twice a year, yet they are rarely seen. Mr. Goodhue has found them at Webster.

Dendroica tigrina. CAPE MAY WARBLER. 650.

The Cape May Warbler, like the last, is a rare migrant that is likely to be found here sooner or later. It has been seen at Webster.

Dendroica palmarum. PALM WARBLER. 672.

This is the form of which the Yellow Palm is made a sub-species. It belongs in the interior, but it appears quite regularly during the last week of September, according to Mr. Brewster (Land and Game Birds of New England, 2d ed., p. 469).

Thryothorus bewickii. BEWICK'S WREN. 719.

There is a specimen of this wren in the college collection, taken by the writer at Alton, April 25, 1890. I am not aware that it has been seen elsewhere in New England.

Parus Hudsonicus. HUDSONIAN CHICKADEE. 740.

Hudsonian Chickadees are residents of the northern portion of this state, and irregular visitors to more southerly parts. They have been taken both in Massachusetts and Connecticut.

Hylocichla aliciæ. GRAY-CHEEKED THRUSH. 757.

This is a northern species that must occur as a late spring and early fall migrant, though it has not yet been taken here to my knowledge.

Hylocichla aliciæ bicknelii. BICKNELL'S THRUSH. 757a.

Bicknell's Thrush breeds in the White Mountains, and is sure to reward the bird student who will persistently search the woods the last of May. Both this and the last must be taken to be certainly distinguished from the Olive-back. The Olive-back has a yellowish eye ring and buff cheeks and is 7 to 7.5 inches long. The Gray-cheek has neither buff cheeks nor eye rings and is 7.5 to 8 inches long. Bicknell's is colored like the Gray-cheek, but is smaller, having a length of 6.75 to 7.25.

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ERRATUM.

Page 105. For *Gulled-billed* Tern read *Gull-billed* Tern.

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